Dismembering the World-Model: Precision Collapse, Ritual Constraint, and Attractor Transitions in Human Consciousness

A Predictive Processing Account of Mystic Initiation and Cognitive Reassembly

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“The Spirit in a Bottle”

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1. Introduction: The Problem of Radical Transformation
Purpose: Establish the phenomenon and the explanatory gap.

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- Common structural features (death, fragmentation, reassembly)

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- Pathologizing accounts (hallucination, psychosis)
- Purely cultural relativism

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- What cognitive mechanism could generate this convergence?

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- Frame dismemberment as **world-model collapse and reconstruction**
- Preview the role of precision, entropy, ritual, and myth

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1. Introduction: The Problem of Radical Transformation

Human cultures have long recognized that certain forms of knowledge, authority, or insight are not acquired incrementally but emerge only after profound disruption. Across mythic, religious, and ethnographic records, individuals who become shamans, prophets, visionaries, or mediators between worlds are repeatedly described as having undergone an experience of symbolic death; often violent, involuntary, and total in its scope. These experiences are not framed as learning episodes, moral refinements, or gradual awakenings, but as catastrophic transitions in which the individual's former identity, perception of reality, and place in the world are dismantled and replaced.

Modern scholarship has struggled to accommodate these accounts. Within anthropology, such narratives are often treated as culturally specific symbols whose meanings are determined locally and resist generalization. Within psychology and psychiatry, similar experiences are frequently pathologized, interpreted as manifestations of psychosis, dissociation, or trauma-related breakdown. Within religious studies and philosophy, they are variously allegorized, aestheticized, or bracketed as ineffable. Each approach captures part of the phenomenon, yet none adequately explains why these experiences recur with such structural similarity across cultures, nor why they are so often described in terms of bodily disintegration, annihilation of meaning, and subsequent reconstitution.

At the same time, contemporary cognitive neuroscience has increasingly emphasized that perception, selfhood, and meaning are not fixed properties but emergent consequences of probabilistic inference under uncertainty. The predictive processing and active inference frameworks model cognition as the continuous construction and revision of a generative model of the world; one that must remain sufficiently stable to guide action, yet flexible enough to accommodate novelty. Within this view, the "world" as it is lived is not given, but actively inferred, maintained, and defended against entropy.

This paper proposes that shamanic dismemberment narratives describe moments when this inferential system undergoes a rare but consequential failure: a collapse of the high-level structures that ordinarily stabilize perception, identity, and meaning. Rather than treating these experiences as metaphors layered atop an otherwise intact cognitive system, we argue that they correspond to genuine phase transitions in the organization of human cognition; transitions that are dangerous, destabilizing, and potentially transformative.

The central claim advanced here is that shamanic dismemberment encodes a culturally stabilized phenomenology of **world-model collapse and reassembly**, driven by shifts in precision weighting, neuromodulatory control, and attractor dynamics within hierarchical generative models. From this perspective, terror, fragmentation, divine encounter, and symbolic death are not ornamental features of myth, but expected subjective correlates of a system that has temporarily lost the capacity to maintain a coherent model of itself and its environment.

The task of this paper is therefore twofold. First, it seeks to demonstrate that the remarkable cross-cultural convergence of dismemberment motifs points to a shared underlying cognitive process rather than coincidental symbolism. Second, it aims to articulate a formal framework (drawing on predictive processing, active inference, and dynamical systems theory) capable of explaining both the phenomenology of these experiences and the cultural technologies developed to contain them.

The sections that follow proceed from description to mechanism. Section 1.1 surveys the cross-cultural recurrence of dismemberment motifs and establishes the empirical problem. Subsequent sections develop the theoretical tools needed to reinterpret these accounts as structured transitions in cognitive organization, culminating in a formal sketch of how entropy, precision collapse, ritual constraint, and reassembly interact to produce what traditions have long recognized as initiation.

1.1 Cross-Cultural Convergence of Dismemberment Motifs

Ethnographic, mythological, and textual records from widely separated cultures display a striking convergence on a particular initiatory motif: the visionary dismemberment of the would-be shaman, prophet, or transformed knower. Despite vast differences in geography, ecology, theology, and social organization, these accounts share a common narrative grammar. The initiate is seized by non-ordinary agents (spirits, gods, ancestors, animals, or cosmic forces) who proceed to dismantle the person's body, often reducing it to bones, ashes, or primordial elements, before reconstructing it into a new form endowed with special capacities.

Among Siberian and Central Asian shamanic traditions, initiation frequently involves visions in which spirits cut the novice into pieces, boil the flesh, scrape the bones clean, and reassemble the skeleton with new organs or magical substances. These accounts recur with remarkable consistency across Tungusic, Yakut, and Buryat cultures, even when separated by linguistic and historical distance. In Amazonian traditions, initiatory illness and visionary encounters often involve being devoured by jaguars, anacondas, or forest spirits, followed by rebirth with altered perception and healing power. In both cases, the initiate does not merely witness death symbolically; they undergo it as an experiential certainty.

Norse mythology presents a structurally homologous narrative in the figure of Odin, who sacrifices himself to himself, hanging wounded and near-dead upon the World Tree in order to acquire the runes. Although not framed as literal dismemberment, the ordeal entails self-inflicted dissolution of bodily integrity, identity, and ordinary perception in exchange for access to a deeper symbolic order. Similarly, Near Eastern and biblical traditions encode parallel structures through different symbolic vocabularies. Ezekiel's visions involve bodily collapse and reconstitution before divine encounter; Solomon's legendary command over spirits is preceded by wisdom gained through liminal, destabilizing encounters; Revelation depicts the annihilation of the existing world-order before the descent of a reconstituted reality.

Alchemical literature preserves the same structure in abstracted, symbolic form. The *nigredo* or *sol niger* phase describes the putrefaction, blackening, and dissolution of the prima materia (often explicitly associated with death, dismemberment, or reduction to ash) prior to recomposition into a more refined substance. The persistence of anatomical language in alchemical texts, despite their ostensibly chemical aims, suggests that these descriptions are not merely metaphorical but draw from a shared experiential template.

What is most notable is not the superficial imagery (bones, cutting, fire, devouring) but the invariant *sequence*: (1) the collapse of the initiate's ordinary identity and world; (2) a period of extreme disintegration characterized by terror, confusion, or void; and (3) a reassembly into a qualitatively different mode of being. This sequence appears regardless of whether the surrounding cosmology interprets the agents as spirits, gods, animals, or abstract principles. The cultural narratives differ, but the structural dynamics remain stable.

Such convergence poses a problem for explanations that rely exclusively on symbolic interpretation, cultural transmission, or local belief systems. Independent invention of such a specific and elaborate narrative structure across societies is statistically implausible unless it is anchored in a common underlying process. The recurrence of dismemberment motifs therefore suggests that these traditions are not merely telling stories *about* transformation, but are stabilizing and transmitting descriptions of a reproducible class of human experiences; experiences sufficiently constrained by cognitive and neurobiological architecture to generate homologous phenomenology across cultures.

This observation motivates the central approach of the present paper: to treat shamanic dismemberment not primarily as metaphor, pathology, or cultural artifact, but as a phenomenological report of a deep and dangerous transition in the organization of human cognition; one that cultures learned to recognize, ritualize, and, in some cases, survive.

1.2 Limitations of Existing Explanations

Despite the ubiquity and internal consistency of dismemberment narratives, existing scholarly approaches have struggled to account for their form, recurrence, and functional role. The difficulty does not stem from a lack of descriptive richness (ethnographic and textual analyses are extensive) but from a mismatch between the phenomenon and the explanatory frameworks typically brought to bear upon it. Three dominant interpretive strategies recur across disciplines: symbolic-cultural interpretation, psychodynamic or depth-psychological explanation, and pathological reduction. Each illuminates certain aspects of the data, yet each leaves critical features unexplained.

Symbolic and cultural interpretations treat dismemberment primarily as metaphor. Within this view, bodily fragmentation stands for social death, liminality, or the dissolution of a prior status, while reassembly signifies reintegration under a new role. This approach has proven valuable for situating initiation rituals within broader systems of meaning and social organization. However, it implicitly assumes that the imagery of dismemberment is chosen *to represent* transformation, rather than arising *from* a constrained experiential process. As a result, it offers little explanation for why such violent and anatomically specific imagery appears so reliably, or why initiates

across cultures report experiences of literal, rather than merely symbolic, annihilation. If these accounts were freely invented symbolic languages, far greater variation would be expected.

Psychodynamic and depth-psychological explanations, drawing on Freudian, Jungian, or post-Jungian traditions, interpret dismemberment as the dramatization of unconscious conflict, ego death, or archetypal transformation. While these frameworks acknowledge the experiential intensity of the phenomena, they tend to universalize symbolic content without specifying a mechanism by which particular images, sequences, and affective dynamics are generated. Archetypal explanation often functions as a descriptive endpoint rather than an explanatory one: dismemberment is said to recur because it is archetypal, but the question of why this archetype arises in human experience remains unanswered.

A third class of explanations reduces dismemberment experiences to pathology. From this perspective, initiatory visions are reclassified as psychotic episodes, dissociative breakdowns, or trauma-induced hallucinations, subsequently rationalized by cultural belief systems. While it is undeniable that similar phenomenology appears in certain psychiatric conditions, this approach fails to explain two crucial facts. First, many individuals who undergo such experiences return with enhanced functional capacities (socially, cognitively, and emotionally) rather than enduring impairment. Second, cultures that institutionalize initiation often develop sophisticated mechanisms for containment, interpretation, and reintegration, suggesting that these states were recognized as dangerous but potentially adaptive rather than simply pathological.

More broadly, these accounts share a common limitation: they treat the mind as a static substrate upon which symbols, narratives, or disorders are imposed. They do not model cognition as a dynamic system capable of undergoing qualitative reorganization. As a result, they cannot adequately explain why dismemberment is so often described as total; why it involves not merely fear or confusion, but the collapse of meaning, identity, temporality, and reality itself.

What is missing is an account that can bridge phenomenology and mechanism; one that can explain how specific subjective experiences arise from structured changes in cognitive organization, and why those changes would produce convergent imagery across cultures. Without such an account, dismemberment remains either over-symbolized, over-pathologized, or under-theorized.

The approach advanced in this paper begins from a different premise: that these experiences reflect a genuine failure mode of ordinary cognition, one that cultures encountered repeatedly and learned to ritualize. By treating shamanic dismemberment as a breakdown and reconfiguration of the systems that ordinarily stabilize perception and selfhood, rather than as a narrative embellishment layered atop them, we can begin to account for both its terror and its transformative potential.

1.3 The Central Question

The convergence and limitations outlined above give rise to a precise and unavoidable question: **what kind of process could produce experiences that are simultaneously catastrophic, structurally similar across cultures, phenomenologically consistent, and yet (under certain conditions) transformative rather than destructive?**

Put differently, how can human cognition generate experiences that feel like the total collapse of reality itself, while still allowing for reorganization and functional return?

This question cannot be answered by appealing solely to cultural symbolism, because symbolism presupposes a stable interpretive agent capable of assigning meaning. Nor can it be resolved by pathologizing such experiences, because pathology alone does not explain why societies repeatedly recognized, preserved, and institutionally supported these states as initiatory rather than terminal. The phenomenon demands an explanation at the level of **cognitive dynamics**; one that treats perception, selfhood, and meaning as contingent and fragile achievements rather than fixed givens.

At stake is the status of the "world" as it is lived. Ordinary experience presents reality as continuous, intelligible, and inhabited by a persistent self. Yet the accounts examined in Section 1.1 consistently report the annihilation of this condition: the world ceases to cohere, the self dissolves, and meaning collapses into terror, paradox, or void. Importantly, these reports are not framed as partial disturbances. Initiates do not say that *something* went wrong with perception; they say that **everything did**. Time stops or fractures, the body becomes alien or nonexistent, language loses its grip, and the distinction between inner and outer dissolves.

The central question of this paper, therefore, is not why people tell stories of death and rebirth, but **what must happen in a cognitive system for the world itself to disappear as a usable model**. What mechanism could account for the subjective certainty of death, dismemberment, or cosmic collapse; without requiring actual bodily harm or irreversible brain damage? And conversely, what conditions would allow such a collapse to resolve into a new, coherent mode of experience rather than permanent fragmentation?

Framed in contemporary terms, this is a question about the stability of generative models. If perception and selfhood arise from hierarchical inference under uncertainty, then the disappearance of the world implies a failure at the highest levels of that hierarchy; levels responsible for integrating sensory data into a unified, meaningful reality. The problem thus becomes one of **model failure** rather than content distortion: the system no longer knows how to interpret its own signals.

This reframing carries a further implication. If shamanic dismemberment reflects a reproducible failure mode of ordinary cognition, then cultures that repeatedly encountered it would be under strong pressure to develop ways of recognizing, containing, and guiding it. Dismemberment narratives would then function not as decorative myths, but as stabilized descriptions of what it feels like when a human world-model collapses; and as instructions, encoded in symbolic form, for how such a collapse might be survived.

The remainder of this paper proceeds on this assumption. Rather than asking what dismemberment *means*, we ask what it *does*: to inference, to precision, to identity, and to the dynamical landscape of belief and action. By answering this question, we aim to show that shamanic dismemberment is neither an anomaly nor an anachronism, but an early and sophisticated attempt to grapple with the most extreme transitions available to the human mind.

1.4 Proposal Overview

This paper proposes that shamanic dismemberment narratives describe a specific class of cognitive transition: a **collapse and subsequent reorganization of the generative model that ordinarily sustains a coherent world and self**. Rather than interpreting these accounts as symbolic representations layered atop intact cognition, we argue that they encode phenomenological reports of a genuine failure mode in hierarchical inference; one that cultures learned to recognize, ritualize, and, under favorable conditions, resolve.

The theoretical framework employed draws primarily on predictive processing and active inference, which model perception and action as the minimization of variational free energy through hierarchical Bayesian inference. Within this framework, the experienced world is not passively received but actively inferred, stabilized by high-level priors that bind sensory input into meaningful objects, narratives, and identities. The apparent solidity of reality depends on the proper allocation of **precision** (the system's estimate of the reliability of its predictions and errors) across levels of the hierarchy.

We suggest that shamanic dismemberment corresponds to a radical disruption of this precision architecture. Specifically, high-level priors governing identity, narrative continuity, and global meaning lose their stabilizing influence, while lower-level sensory and affective signals gain disproportionate salience. The result is not merely altered perception, but the **loss of the world as a usable model**: prediction errors proliferate without resolution, meaning collapses, and the system enters a state of profound uncertainty and instability. Plato's aporia, alchemical *sol niger*, and apocalyptic imagery can all be understood as culturally inflected descriptions of this same underlying condition.

Crucially, this collapse is not treated here as an endpoint. Drawing on dynamical systems theory, we model cognition as occupying attractor basins; stable regimes of belief and action shaped by prior experience and biological constraints. Precision collapse and increased entropy temporarily flatten this landscape, allowing the system to escape entrenched attractors that would otherwise be inaccessible. This metastable state is dangerous, as it risks chronic fragmentation, but it is also uniquely plastic. Under the right conditions, a new attractor can form, corresponding to a reassembled world-model with altered priors, values, and capacities.

A central and novel contribution of this paper is the claim that **ritual functions as an external constraint on policy space during this vulnerable phase**. When internal mechanisms for evaluating expected free energy degrade (rendering the agent unable to reliably choose actions or interpretations) ritualized structures restrict degrees of freedom, stabilize attention, and guide learning.

In this view, myth, symbolism, repetition, isolation, and social framing are not ancillary to transformation but constitute a distributed control system that biases reassembly toward culturally viable outcomes.

The paper proceeds as follows. Section 2 introduces the predictive processing, active inference, and dynamical systems concepts necessary for the argument. Section 3 defines the "world-model" in formal terms and outlines the conditions under which it remains stable or fails. Sections 4 through 6 develop the core account of dismemberment as precision collapse, linking phenomenology to neuromodulatory control and attractor dynamics. Section 7 articulates the role of ritual as policy-space engineering, while Section 8 reinterprets mythic figures and symbolic content as priors and control interfaces rather than metaphors. Section 9 presents a mathematical sketch of the proposed mechanisms. The final sections explore implications, predictions, limitations, and ethical considerations.

Taken together, this approach reframes shamanic dismemberment as a general theory of deep cognitive transformation: one that situates ancient practices within contemporary models of mind without reducing them to pathology or metaphor. The goal is not to rehabilitate myth as proto-science, but to recognize it as an early phenomenological science of the most extreme transitions the human cognitive system can undergo.

2. Theoretical Background

This section establishes the conceptual framework required to reinterpret shamanic dismemberment as a structured transition in cognitive organization. Rather than introducing novel claims, the aim here is to assemble existing theoretical tools (predictive processing, active inference, and dynamical systems theory) into a coherent scaffold. Each component is well-established in contemporary cognitive science; their integration, and their application to initiatory collapse, will be developed in subsequent sections.

2.1 Predictive Processing and Hierarchical Inference

Predictive processing offers a unifying account of perception, action, and cognition in which the brain is understood as a hierarchical inference engine. Rather than passively registering sensory inputs, the system continuously generates predictions about the causes of those inputs and updates its beliefs in response to mismatches between expectation and observation. Perception, on this view, is the outcome of an ongoing attempt to minimize prediction error across multiple levels of abstraction.

Formally, predictive processing models cognition as the construction and refinement of a *generative model* of the world. This model specifies how latent states of the environment and body are expected to give rise to sensory observations. Incoming sensory data are compared against these predictions, producing prediction errors that propagate up the hierarchy and drive belief updating. Crucially, this process is bidirectional: higher levels of the hierarchy provide contextual constraints that shape lower-level interpretation, while lower levels supply error signals that can revise higher-level beliefs.

Hierarchical organization is central to this framework. Low-level states encode fast-changing, modality-specific features such as edges, tones, or bodily sensations. Intermediate levels bind these features into objects, scenes, and affordances. At the highest levels reside abstract, temporally extended constructs: the sense of a persistent self, narrative identity, social roles, and the implicit assumptions that define what kind of world one inhabits. These high-level representations do not merely describe experience; they actively structure it by determining which interpretations are plausible and which are ignored.

The influence of any given level on inference is regulated by **precision weighting**, which reflects the system's estimate of the reliability of prediction errors at that level. Precision determines how much a given discrepancy should influence belief updating. High precision assigned to sensory prediction errors renders perception data-driven and vivid; high precision assigned to priors renders perception stable, resistant to noise, and conceptually constrained. Under ordinary conditions, cognition depends on a delicate balance between these forces, allowing the system to remain both stable and adaptable.

Within this framework, the apparent immediacy and certainty of the experienced world is not a property of the world itself, but a consequence of successful inference. When prediction errors are efficiently minimized and precision is appropriately allocated, the generative model produces

a coherent, self-consistent interpretation of sensory data. Objects persist, time flows, identity feels continuous, and meaning appears intrinsic rather than inferred.

Importantly, predictive processing does not assume that the generative model is veridical in any absolute sense. Its criterion is pragmatic: the model must be good enough to guide action and maintain viability. This implies that the "world" of experience is always provisional, contingent on the stability of the inferential process that sustains it. When that process fails (when prediction errors accumulate without resolution or when precision is misallocated) the experienced world can degrade, distort, or collapse.

This last implication is essential for the present argument. If perception and selfhood depend on hierarchical inference under uncertainty, then it follows that radical disruptions of precision or prediction at high levels of the hierarchy could produce experiences in which reality itself appears to disintegrate. Predictive processing thus provides the conceptual foundation for understanding how shamanic dismemberment could arise from structured changes in cognition rather than from metaphorical imagination or cultural invention alone.

2.2 Active Inference and Policy Selection

While predictive processing accounts for how beliefs about the world are updated, **active inference** extends this framework by incorporating action and decision-making into the same inferential machinery. Under active inference, organisms do not merely infer the causes of their sensations; they also act to bring about sensations that conform to their predictions. Action is thus treated as another means of minimizing prediction error, achieved by selecting policies that are expected to keep the organism within viable bounds.

Central to active inference is the concept of **policies**; sequences of actions, attentional allocations, and epistemic strategies that an agent can pursue over time. Rather than choosing actions solely on the basis of immediate reward, the agent evaluates policies according to their **expected free energy**, a quantity that estimates how well a given policy will minimize future surprise. Expected free energy incorporates two complementary components: pragmatic value, which reflects how well predicted outcomes align with prior preferences or needs, and epistemic value, which reflects the expected gain in information or reduction in uncertainty.

This formulation yields a crucial insight: organisms are driven not only to achieve desired outcomes, but also to reduce uncertainty about the structure of the world. Exploration, curiosity, and learning are therefore not add-ons to cognition, but intrinsic features of policy selection. Under normal conditions, high-level priors (such as assumptions about identity, social norms, and environmental regularities) provide a stable evaluative framework that allows the agent to rank policies reliably. The world feels navigable because there are clear expectations about which actions are appropriate, meaningful, or safe.

However, this evaluative capacity depends on the integrity of the generative model. If high-level priors lose precision or coherence, the system's ability to assess expected free energy degrades. Policies that were once clearly preferable become indistinguishable, while others may acquire disproportionate salience without clear justification. The agent may experience paralysis,

compulsive repetition, or chaotic exploration; not because action has ceased, but because **policy selection itself has become unreliable**.

This dynamic is particularly relevant to the phenomenology of shamanic dismemberment. Reports of initiatory crisis frequently emphasize not only perceptual collapse, but the loss of agency: the initiate is "taken," "seized," or "carried away" by forces beyond their control. Within the active inference framework, this loss of agency can be understood as a failure of endogenous policy evaluation. When the system can no longer reliably predict the consequences or meaning of its actions, the experience of authorship over behavior dissolves. Actions may still occur, but they are no longer experienced as chosen.

Importantly, active inference predicts that such states are inherently unstable. A system that cannot evaluate policies cannot sustain coherent interaction with its environment. Unless constraints are imposed (either internally through restored precision or externally through structured contexts) the agent risks drifting into maladaptive or destructive regimes. This provides a formal basis for understanding why cultures that recognized initiatory collapse developed highly constrained ritual environments: by restricting the available policy space, they compensated for the temporary failure of internal evaluative mechanisms.

Thus, active inference bridges the gap between belief collapse and cultural practice. It explains why dismemberment is not merely perceptual but existential, why agency is experienced as externalized, and why ritualized containment is not optional but functionally necessary. In the sections that follow, this framework will be used to show how the breakdown and recovery of policy selection play a central role in both the danger and the transformative potential of shamanic initiation.

2.3 Dynamical Systems and Attractor Landscapes

To understand how predictive and active inference processes can undergo catastrophic yet recoverable transitions, it is useful to frame cognition in the language of **dynamical systems theory**. In this perspective, mental states are not static representations but trajectories through a high-dimensional state space shaped by biological constraints, learned expectations, and environmental coupling. Stability, disruption, and transformation correspond to changes in the geometry of this space.

A central concept in dynamical systems is that of an **attractor**: a region of state space toward which system trajectories tend to converge over time. Attractors can take many forms (fixed points, limit cycles, or more complex structures) but in all cases they represent stable regimes of behavior and inference. For cognition, an attractor corresponds to a coherent mode of perceiving, interpreting, and acting in the world. Ordinary waking consciousness can be understood as the occupation of a deep, well-established attractor basin shaped by long-term learning, socialization, and neurobiological regularities.

Within the predictive processing framework, attractors arise from the interaction between generative models, precision weighting, and action policies. High-level priors carve valleys in the inferential landscape, constraining belief updating and policy selection toward familiar

interpretations and behaviors. The depth of an attractor basin reflects its stability: deeper basins resist perturbation, while shallow basins permit easier transitions. Most everyday experiences involve small fluctuations within a single basin, allowing adaptation without loss of coherence.

Radical transformation, however, requires **attractor escape**. From a dynamical perspective, escaping a deep basin is nontrivial; it typically demands either a substantial perturbation or a change in the system's control parameters. In cognitive terms, such perturbations may take the form of sustained prediction error, extreme uncertainty, or neuromodulatory shifts that alter gain and learning rates. When these forces act together, they can flatten the landscape; reducing the depth of existing basins and increasing the probability of transition into alternative regimes.

This framing clarifies the role of **entropy** in transformative states. Entropy here does not denote random disorder, but a temporary increase in the system's degrees of freedom. As attractor basins flatten, the system explores a wider range of configurations, sampling states that would ordinarily be inaccessible. This metastable condition is often experienced subjectively as confusion, fragmentation, or chaos, but it also represents a window of heightened plasticity. The system is no longer locked into its habitual patterns and can, in principle, reorganize.

Crucially, metastability is double-edged. Without sufficient constraint, exploration can fail to converge on a new stable basin, resulting in chronic instability or breakdown. Dynamical systems theory therefore predicts both the danger and the promise of high-entropy cognitive states: they enable profound reconfiguration, but only if conditions favor re-stabilization. This insight aligns closely with ethnographic observations that initiatory crises are perilous and that not all who enter them return intact.

By modeling cognition as a landscape of attractors, we gain a language for articulating what shamanic dismemberment feels like from the inside. The collapse of identity, meaning, and agency corresponds to the dissolution of the old basin; the experience of being "between worlds" reflects metastable wandering; and reassembly marks the settling of the system into a new configuration. In subsequent sections, this dynamical picture will be integrated with predictive processing and active inference to show how changes in precision, policy evaluation, and ritual constraint jointly shape the trajectory from collapse to reconstitution.

2.4 Existing Work on Altered States

The proposal advanced in this paper intersects with a growing body of research on altered states of consciousness, particularly in neuroscience, psychiatry, and consciousness studies. These literatures provide partial support for the idea that radical changes in experience correspond to systematic changes in hierarchical inference, precision weighting, and network dynamics. At the same time, they reveal important gaps that the present framework aims to address.

Recent work on psychedelic states has been especially influential. The "Relaxed Beliefs Under Psychedelics" (REBUS) model proposes that classic psychedelics reduce the precision of high-level priors, allowing bottom-up sensory and affective signals to exert greater influence on

perception and belief. Empirical findings support this account: psychedelic states are associated with decreased integrity of the default mode network, increased neural signal diversity, heightened entropy, and altered salience attribution. Subjectively, these states often involve ego dissolution, intensified perception, and a sense that reality has become fluid or unstable; features that closely resemble early phases of shamanic dismemberment narratives.

However, psychedelic research typically focuses on acute pharmacological perturbations within modern experimental or therapeutic contexts. While it demonstrates that precision collapse can be induced and partially controlled, it does not explain why certain altered states historically took the form of prolonged crises involving terror, fragmentation, and existential collapse, nor why cultures developed elaborate ritual systems to manage them. Moreover, psychedelic experiences are often framed as insights into reality rather than as dangerous transitions that risk permanent disorganization.

Psychosis research offers a complementary but contrasting perspective. Contemporary Bayesian models of psychosis describe it as a disorder of belief updating in which aberrant precision is assigned to prediction errors, leading to unstable or delusional inferences. This work has been instrumental in showing that hallucinations, delusions, and disorganized thought can arise from systematic disruptions of predictive processing rather than from random neural noise. Yet psychosis is generally studied as a pathological endpoint, with limited attention to the possibility of recovery through reorganization rather than mere symptom suppression.

Importantly, the phenomenology reported in early psychotic episodes (loss of meaning, hyper-significance, derealization, fragmentation of self, and externalization of agency) overlaps substantially with initiatory dismemberment accounts. What differs is not the mechanism of collapse, but the presence or absence of stabilizing constraints that enable reassembly. This distinction is rarely foregrounded in clinical models, which tend to focus on preventing destabilization rather than understanding how re-stabilization might occur under controlled conditions.

Mystical experience research occupies an intermediate position. Studies of spontaneous or contemplative mystical states often report ego dissolution, timelessness, ineffability, and a sense of unity. While these accounts emphasize positive affect and long-term benefits, they frequently understate the destabilizing aspects of such experiences or treat them as peripheral. Moreover, mystical experience research often lacks a clear account of the mechanisms that differentiate integrative outcomes from disintegrative ones.

Across these literatures, several themes recur: alterations in large-scale network organization, changes in entropy and signal diversity, and shifts in the balance between top-down and bottom-up processing. What remains underdeveloped is a unified account that explains why similar neural and computational changes sometimes result in healing or insight, and at other times in breakdown or chronic pathology. Existing models typically stop at description or correlation, without addressing the role of structured environments, cultural narratives, and constrained action in shaping outcomes.

The present paper aims to extend these bodies of work by introducing a crucial additional variable: **the regulation of policy space during periods of inferential collapse**. By integrating predictive processing, active inference, and dynamical systems theory with anthropological observations of ritual practice, we seek to explain not only how altered states arise, but why their trajectories diverge so dramatically. In doing so, we position shamanic dismemberment as neither an archaic curiosity nor a pathological anomaly, but as an early and sophisticated engagement with the same cognitive instabilities that modern science is only beginning to formalize.

3. The World-Model: Definition and Stability Conditions

The central construct of this paper (the *world-model*) requires careful definition. In everyday language, "the world" appears as a given: a stable environment populated by objects, governed by regularities, and inhabited by a continuous self. Within predictive processing, however, this apparent givenness is understood as an achievement of inference. The world-model is not the external world itself, but the **highest-order, temporally extended generative structure** that renders experience coherent, navigable, and meaningful.

This section formalizes the world-model as a dynamical object, specifies the conditions under which it remains stable, and clarifies the modes by which it can fail.

3.1 The World-Model as a High-Level Generative Attractor

Within the predictive processing framework, the "world" of lived experience is best understood not as a direct reflection of external reality, but as the stabilized output of a high-level generative model. This model integrates sensory input, bodily states, memory, affect, and social expectation into a coherent interpretation that guides perception and action. Its success is measured pragmatically: a world-model is "true" insofar as it enables the organism to act effectively, anticipate outcomes, and maintain physiological and social viability.

At the highest levels of the inferential hierarchy, the generative model encodes assumptions that are rarely, if ever, brought into explicit awareness. These include the persistence of objects over time, the continuity of personal identity, the predictability of causal relations, and the implicit norms that define what counts as meaningful or relevant. Such assumptions are not propositional beliefs but structural constraints that shape all lower-level inference. They function as *hyperpriors* (priors over priors) that determine the overall geometry of the inferential landscape.

From a dynamical systems perspective, this high-level generative model corresponds to a **deep attractor basin**. Over development and socialization, repeated successful inference deepens this basin, making the world feel stable, familiar, and resistant to disruption. Minor anomalies are absorbed through local belief updates, while major inconsistencies are typically resolved through reinterpretation or avoidance. The system's default mode is thus one of conservation: preserving the integrity of the existing world-model against entropy.

The subjective experience of reality's solidity follows directly from this stability. When high-level predictions exert sufficient precision over lower levels, perception feels immediate and self-evident rather than inferred. The self appears continuous and bounded; time flows in a predictable manner; objects and meanings seem to belong naturally together. Importantly, this sense of obviousness is not a mark of accuracy but of successful constraint. The world feels real because alternative interpretations are not being entertained.

This characterization allows us to distinguish between disturbances *within* a world-model and disturbances *of* the world-model. Many altered states (illusions, emotional shifts, attentional lapses) occur within the same high-level attractor and leave its fundamental structure intact. By contrast, the phenomena described in shamanic dismemberment narratives imply a failure at the

level of the attractor itself. The issue is not that particular beliefs become false, but that the system loses confidence in the assumptions that make any beliefs cohere.

Understanding the world-model as a high-level generative attractor clarifies why its collapse would be experienced as catastrophic. Because this model governs not only perception but the very criteria for intelligibility, its failure entails the loss of meaning, orientation, and agency simultaneously. There is no external vantage point from which to interpret the breakdown; the tools required to make sense of experience are themselves compromised.

This framing sets the stage for the analysis that follows. If the world-model is an attractor stabilized by precision-weighted inference, then shamanic dismemberment can be approached as a process in which the precision sustaining that attractor is withdrawn, the basin flattens, and the system is forced into a regime of unstable exploration. The next sections examine how such withdrawal occurs, why it produces the characteristic phenomenology of dismemberment, and under what conditions a new world-model can emerge.

3.2 Precision Regimes and the Conditions of Stability

If the world-model functions as a high-level generative attractor, its stability depends not merely on the content of its beliefs but on the **regime of precision** that governs how strongly those beliefs constrain inference. Precision, in predictive processing, determines the relative influence of prediction errors and priors at each level of the hierarchy. It is therefore the key variable that regulates whether the system favors stability or revision, conservation or exploration.

Under ordinary conditions, the cognitive system operates in a regime in which high-level priors (those encoding identity, narrative continuity, and basic assumptions about the world) are assigned relatively high precision. This does not imply rigidity in a pathological sense; rather, it ensures that the system is not constantly destabilized by noise, ambiguity, or transient anomalies. Sensory prediction errors are weighted according to their expected reliability, allowing the organism to update local beliefs without threatening the coherence of the overall model.

This balance produces what may be called **experienced realism**: the sense that the world is simply "there," that one is the same person from moment to moment, and that events unfold within a stable causal and temporal framework. Importantly, this realism is not a neutral baseline but an achievement. It depends on the successful coordination of multiple subsystems (perceptual, affective, mnemonic, social) under a shared precision hierarchy. When this coordination holds, uncertainty is largely invisible; the world feels determinate because indeterminacy has been effectively managed.

Precision regimes also explain why most individuals can tolerate considerable stress, novelty, or contradiction without losing their sense of reality. As long as high-level priors retain sufficient precision, even extreme experiences can be assimilated through reinterpretation, rationalization, or compartmentalization. The system explains away anomalies rather than reorganizing itself around them. From a dynamical perspective, the attractor basin remains deep enough that perturbations fail to dislodge the system.

However, this same mechanism implies a vulnerability. If the precision assigned to high-level priors is reduced (whether through sustained prediction error, neuromodulatory shifts, physiological stress, or deliberate practices) the stabilizing force of the world-model weakens. Lower-level signals, including sensory noise, affective fluctuations, and interoceptive disturbances, gain relative influence. The system becomes increasingly data-driven, but without a reliable framework for interpretation.

Crucially, such a shift does not merely alter perception; it changes the **criteria by which interpretations are evaluated**. When high-level precision collapses, the system loses its capacity to adjudicate between competing explanations of experience. Multiple hypotheses may coexist without resolution, or none may feel credible at all. This is the formal correlate of aporia: a state in which inference continues, but confidence in inference does not.

In this unstable regime, the world-model ceases to function as an attractor. Its basin flattens, and trajectories that would previously have been corrected are now permitted to drift. Subjectively, this manifests as derealization, depersonalization, loss of meaning, and the sense that reality itself is slipping away. Because the collapse occurs at the level of precision rather than content, it is experienced as global rather than local: *everything* becomes questionable at once.

The distinction between stable and unstable precision regimes is therefore essential for understanding shamanic dismemberment. These narratives do not describe gradual belief change or symbolic role transition; they describe a breakdown in the mechanisms that normally keep belief change bounded. The initiate is not persuaded into a new worldview but stripped of the ability to maintain any worldview at all. Only once this collapse has occurred can reassembly (under new constraints) be possible.

With this understanding in place, the next section turns to the failure modes that arise when precision regimes are pushed beyond their adaptive limits, and to the specific ways in which such failures are experienced as dismemberment, annihilation, or death.

3.3 Failure Modes of the World-Model

Understanding the stability of the world-model in terms of precision regimes makes it possible to specify **how and why that model fails**. Importantly, not all failures are equivalent. The collapse described in shamanic dismemberment narratives represents a distinct class of breakdown; one that differs in structure, scope, and consequence from more familiar cognitive disturbances.

A first failure mode arises from **excessive rigidity**. When high-level priors are assigned overly high precision, the system becomes resistant to updating even in the face of sustained prediction error. This rigidity can manifest as dogmatism, compulsive repetition, or delusional certainty. From a dynamical perspective, the attractor basin becomes too deep: the system is trapped in a narrow region of state space and cannot adapt. While such rigidity can be maladaptive, it does not produce the phenomenology of dismemberment. The world remains coherent (if distorted) because the stabilizing priors are never relinquished.

A second failure mode involves **localized instability**. In this case, specific domains of inference (perception, affect, or self-representation) become dysregulated while the global world-model remains intact. Examples include perceptual illusions, mood disorders, or dissociative episodes that occur against a backdrop of preserved reality testing. These disturbances can be distressing, but they are experienced as *anomalies within a world*, not as the loss of the world itself. The system retains a meta-level capacity to recognize that something has gone wrong.

Shamanic dismemberment corresponds to a third and more radical failure mode: **global model collapse**. Here, precision loss occurs at the highest levels of the hierarchy, undermining the assumptions that bind all subordinate inferences together. Because these assumptions govern not only what is perceived but how perception is evaluated, their failure propagates throughout the system. There is no longer a stable vantage point from which to distinguish signal from noise, self from world, or inner from outer.

In formal terms, global collapse occurs when the system can no longer minimize free energy through incremental belief updating. Prediction errors proliferate across levels without convergence, and the posterior distribution over high-level states broadens dramatically. The system enters a state of high uncertainty in which multiple incompatible hypotheses compete, or in which no hypothesis attains sufficient credibility to organize experience. This is not confusion in the ordinary sense; it is the loss of the criteria by which confusion could be resolved.

Subjectively, this failure mode is experienced as total. Initiates report the dissolution of identity, the breakdown of temporal order, the collapse of language and meaning, and the certainty of death. The frequent use of bodily imagery (cutting, dismemberment, devouring) reflects the fact that the most basic integrative schemas, including those that anchor the self to the body, are no longer reliably inferred. When even interoceptive and proprioceptive predictions lose coherence, the body itself becomes an object of estrangement or annihilation.

This global collapse is what distinguishes shamanic dismemberment from both pathology and ordinary altered states. It is not a partial malfunction, nor a symbolic dramatization, but a **system-level failure** of the mechanisms that normally sustain reality as such. At the same time, it is precisely this scope that makes transformation possible. By dismantling the constraints that ordinarily keep the system locked into a single attractor, global collapse creates the conditions for large-scale reorganization.

However, the same dynamics that enable reorganization also carry substantial risk. Without mechanisms to limit exploration and guide re-stabilization, the system may fail to form a new coherent attractor, resulting in chronic instability or fragmentation. This duality (catastrophe and possibility) is central to the logic of initiation. Dismemberment is not sought because it is enlightening, but because it is the price of access to forms of cognition unavailable within the bounds of ordinary stability.

With the failure modes of the world-model now specified, the analysis can turn from structure to experience. The next section examines how global model collapse is lived from the inside (why it is experienced as terror, aporia, and annihilation) and how these phenomenological features follow directly from the underlying dynamics.

4. Dismemberment as Precision Collapse

This section shifts from structural description to **phenomenology grounded in mechanism**. Having defined the world-model as a high-level generative attractor and specified its failure modes, we now examine what *global model collapse feels like* from the inside, and why shamanic traditions so consistently describe it as dismemberment, annihilation, or death. The guiding claim of this section is that the characteristic phenomenology of dismemberment follows necessarily from a collapse in high-level precision, rather than from culturally contingent symbolism.

4.1 Precision Reallocation Across the Hierarchy

The phenomenology of shamanic dismemberment can be traced to a specific computational event: a **radical reallocation of precision across the inferential hierarchy**. Where the preceding section described global world-model collapse in structural terms, the present section examines the mechanism by which that collapse unfolds in lived experience. The central claim is that dismemberment arises when precision is withdrawn from high-level priors and redistributed toward lower-level sensory, affective, and interoceptive signals.

Under ordinary conditions, high-level priors exert strong top-down constraint over interpretation. They suppress irrelevant noise, contextualize ambiguity, and ensure continuity across time. Precision at these levels functions as a binding force, allowing disparate sensory and cognitive processes to cohere into a single, intelligible world. When this precision regime is intact, the system experiences itself as unified, oriented, and agentive.

In dismemberment states, this regime fails. Precision assigned to high-level priors governing identity, narrative continuity, and global meaning is markedly reduced. As a result, these priors lose their ability to explain away prediction errors arising from lower levels of the hierarchy. Signals that would ordinarily be dampened (bodily sensations, affective surges, perceptual noise) gain disproportionate influence. The inferential balance shifts from top-down stabilization to bottom-up intrusion.

This reallocation has immediate and cascading effects. First, perception becomes hyper-salient yet unstructured. Sensory input may intensify in vividness while simultaneously losing coherence. Colors, sounds, and bodily sensations feel overwhelming, intrusive, or alien, because they are no longer organized by reliable expectations. Second, affect becomes labile and extreme. Without high-level constraints to contextualize emotional signals, fear, awe, or despair can dominate experience without clear cause or object.

Most consequentially, the self-model destabilizes. The sense of being a bounded, continuous subject depends on precise predictions about bodily states, agency, and temporal persistence. When these predictions lose precision, the self fragments. Thoughts, sensations, and impulses are no longer experienced as “mine” but as events that happen without ownership. This loss of ownership is frequently reported in dismemberment accounts as being acted upon by external forces (spirits, gods, or ancestors) who cut, consume, or dismantle the initiate.

From the system's perspective, this externalization is not delusional but inferentially appropriate. Agency attribution is itself a prediction. When the internal model of self-agency becomes unreliable, the system seeks alternative explanations for the origin of its experiences. In cultures with established mythic frameworks, these explanations take the form of spirits or deities; in other contexts, they may appear as impersonal forces or abstract inevitabilities. The common feature is that control is no longer located within the self.

This precision reallocation also explains the characteristic sequencing of dismemberment narratives. Initial phases often involve sensory intensification and fear as bottom-up signals break through. These are followed by experiences of fragmentation, bodily destruction, or annihilation as the self-model fails to integrate those signals. Finally, a state of void, darkness, or suspension may occur, corresponding to a condition in which neither high-level priors nor low-level signals can successfully organize experience. This latter state aligns closely with descriptions of *sol niger* and aporia: perception continues, but meaning does not.

Crucially, precision reallocation is not itself adaptive or maladaptive; its consequences depend on duration, magnitude, and context. Temporary shifts can facilitate learning and flexibility. Prolonged or uncontrolled shifts, however, risk permanent disintegration. Shamanic dismemberment occupies an extreme position on this spectrum: a near-total withdrawal of high-level precision that brings the system to the edge of viability.

In this light, dismemberment is not a metaphor for psychological change but a phenomenological description of what it feels like when the brain's usual confidence in its own world-model collapses. Bones scraped clean, flesh removed, organs replaced; these images capture, with remarkable fidelity, the experience of being reduced to inferential primitives once the structures that normally hold perception and identity together have been stripped away.

4.2 Subjective Phenomenology: Fragmentation, Terror, and the Loss of Worldhood

When precision is withdrawn from high-level priors and redistributed toward lower-level signals, the resulting experience is not merely one of altered perception but of **existential collapse**. This section examines why global precision failure is lived subjectively as terror, fragmentation, and annihilation, rather than as neutral uncertainty or curiosity. The key claim is that these affective qualities are not incidental reactions to confusion, but intrinsic consequences of a system that has lost the capacity to sustain a coherent world.

Under normal conditions, uncertainty is buffered by confidence in the world-model. Ambiguity can be tolerated because it is local, bounded, and interpretable within a stable framework. In dismemberment states, by contrast, uncertainty becomes unbounded. Because high-level priors no longer constrain interpretation, *nothing* is exempt from doubt; not perception, not memory, not the continuity of the self, and not the existence of the world itself. This produces a distinctive form of distress: not fear *of* something, but fear *without an object*.

Terror in this context is therefore structural rather than situational. It arises because the cognitive system depends on a coherent world-model to regulate arousal, anticipate outcomes, and guide

action. When that model collapses, the organism loses its primary means of orienting itself relative to threat and safety. Arousal increases in response to pervasive uncertainty, but there is no stable interpretation that would allow arousal to resolve into action. The result is a state of sustained alarm without direction; experienced as dread, panic, or cosmic horror.

Fragmentation follows directly from this condition. As the integrative functions of the world-model fail, experience decomposes into unbound elements: sensations without context, emotions without narrative, thoughts without ownership. The unity of consciousness gives way to a multiplicity of competing impressions that no longer cohere. Initiates frequently describe this as being "torn apart" or "scattered," reflecting the breakdown of the binding processes that normally integrate experience across time and modality.

The breakdown of bodily coherence is especially salient. The sense of having a body depends on stable predictions about interoceptive and proprioceptive signals. When these predictions lose precision, the body may feel distorted, absent, invaded, or destroyed. Reports of being cut open, devoured, boiled, or reduced to bones reflect the loss of the body as a reliable anchor for selfhood. The body ceases to be a taken-for-granted ground of experience and becomes instead an unstable or hostile object.

At its extreme, this process culminates in the **loss of worldhood**. Worldhood refers to the implicit sense that experiences occur *within* a shared, structured reality that persists beyond any given moment. When worldhood collapses, experience no longer feels situated anywhere. Time may stop, loop, or dissolve; space may lose coherence; and causality may appear meaningless. This is the state often described as entering darkness, void, abyss, or nothingness; a condition closely aligned with philosophical accounts of aporia and alchemical descriptions of *sol niger*.

Importantly, this void is not experienced as peaceful absence but as the failure of sense-making itself. The system continues to generate sensations and affects, but lacks the inferential resources to bind them into a world. Meaning does not merely recede; it becomes inaccessible. Language falters because language presupposes stable referents and temporal continuity; both of which have collapsed. What remains is raw, unstructured experience without interpretation.

This phenomenological profile explains why dismemberment narratives emphasize certainty rather than doubt. Initiates do not report that they *felt as if* they were dying; they report that they *knew* they were dead. This certainty arises because the collapse of the world-model eliminates alternative interpretations. When the system cannot generate a model in which the self survives, death becomes the only viable inference. In this sense, the experience of death is not metaphorical but epistemically grounded within the altered inferential regime.

The severity of this experience underscores the stakes of shamanic initiation. Dismemberment is not a symbolic rehearsal of transformation but an ordeal that pushes the cognitive system to the limits of coherence. That such states were repeatedly sought, structured, and survived suggests that cultures recognized both their danger and their unique capacity to produce reorganization at the deepest levels of experience.

4.3 Aporia, Sol Niger, and the Suspension of Meaning

Following the phases of terror and fragmentation described above, dismemberment narratives frequently enter a qualitatively different experiential register: a state of suspension, darkness, or impasse in which experience continues but **meaning no longer organizes it**. This condition has been variously named across traditions. Plato's *aporia*, the alchemical *sol niger* or *nigredo*, the shamanic descent into the underworld, the biblical darkness before creation, or the void preceding revelation. Despite differences in symbolism, these descriptions converge on a shared phenomenological core: the arrest of sense-making itself.

From the perspective of predictive processing, this state corresponds to a regime in which neither high-level priors nor low-level prediction errors are able to dominate inference. Precision at the top of the hierarchy has collapsed, depriving the system of global constraints, while the overwhelming salience of bottom-up signals has exhausted its capacity to generate coherent hypotheses. The inferential process does not stop (sensations, affects, and thoughts continue to arise) but it no longer converges. Free energy remains high and irresolvable.

Plato's notion of aporia captures this condition with unusual precision. Aporia is not simple ignorance or confusion, but a state in which all available explanatory paths fail simultaneously. One is not merely uncertain, but unable to determine *how* uncertainty might be resolved. In cognitive terms, aporia marks the point at which the system's current model class has been exhausted. No reweighting of existing beliefs can reduce prediction error, yet no alternative model has sufficient support to replace it. Inference persists without traction.

Alchemical traditions render this impasse symbolically as *sol niger*; the blackening of the sun. The sun, long associated with illumination, order, and intelligibility, is eclipsed. Importantly, this darkness is not simple negation but inversion: light is present but no longer illuminating. Experiences in this phase are often described as empty, featureless, or profoundly ambiguous, yet charged with latent significance. The world is not gone, but it is no longer readable.

Subjectively, this phase is often reported as a void, abyss, or suspension outside of time. Initiates may experience immobility, silence, or an inability to think or speak. Language fails because it presupposes stable meanings and distinctions, which are precisely what have collapsed. Time may feel frozen or irrelevant, reflecting the loss of temporally extended priors that normally structure experience into past, present, and future.

This suspension is critical to the logic of dismemberment. It represents the moment at which the old world-model has fully dissolved, but a new one has not yet formed. In dynamical terms, the system is wandering through a flattened attractor landscape without commitment. From the inside, this feels like nothingness; not because experience has ceased, but because experience is no longer *about* anything.

Crucially, aporia is not merely a byproduct of collapse; it is a **necessary condition for reorganization**. As long as the old model retains even minimal authority, it will continue to reassert itself, explaining away novelty and resisting change. Aporia marks the exhaustion of that

authority. Only when the system accepts, at an inferential level, that it does not know how the world works can new priors be installed.

This insight clarifies why many traditions emphasize endurance rather than insight at this stage. The initiate is not instructed to understand the void, but to remain within it. Premature attempts to impose meaning (to escape aporia too quickly) risk reinstating the old model or stabilizing around maladaptive interpretations. The darkness must be allowed to complete its work.

In this sense, *sol niger* is not the goal of dismemberment but its fulcrum. It is the hinge point between destruction and creation, the moment when entropy has done its work of dismantling entrenched structures, yet before order has reasserted itself. What follows (reassembly, revelation, or rebirth) depends not on insight achieved during aporia, but on the conditions that shape what comes next.

4.4 Transition Conditions: From Collapse Toward Reassembly

The state of aporia and *sol niger* described above marks a point of maximal instability in the cognitive system, but it does not determine the outcome of the process. From this suspended condition, multiple trajectories are possible: chronic fragmentation, rigid delusional re-stabilization, gradual recovery of the prior world-model, or the emergence of a qualitatively new mode of organization. What distinguishes these outcomes are the **transition conditions** under which precision, agency, and coherence begin to return.

From a predictive processing and dynamical systems perspective, reassembly requires a partial restoration of precision at higher levels of the hierarchy; but not a simple return to the previous regime. If precision were to snap back indiscriminately, the system would be pulled back into the original attractor basin, effectively nullifying the transformative potential of collapse. Conversely, if precision remains globally suppressed, the system cannot converge on any stable interpretation and risks remaining trapped in a state of indeterminacy. Reassembly therefore depends on *graded, selective reinstatement* of precision.

Neuromodulatory dynamics are central to this process. As arousal subsides from its peak and signal-to-noise ratios begin to normalize, the system regains the capacity to differentiate between competing hypotheses. Crucially, however, this differentiation now occurs in a landscape that has been reshaped by collapse. Certain priors have been weakened or eliminated entirely, while others (previously peripheral or inaccessible) may now gain traction. The system does not simply rebuild what was lost; it rebuilds under altered constraints.

Subjectively, this phase is often experienced as the first emergence of form out of the void. Initiates report faint structures, images, sounds, or presences that gradually acquire coherence. These experiences are frequently described as revelations, encounters, or teachings, but they can be more precisely understood as the **initial stabilization of new interpretive frameworks**. Meaning returns not as certainty, but as possibility.

At this stage, the system is exceptionally sensitive to bias. Because the inferential landscape remains relatively flat, small perturbations (social cues, symbolic content, expectations, or

environmental constraints) can exert disproportionate influence on which attractor basin begins to deepen. This sensitivity explains both the power and the danger of the post-collapse phase. It is here that maladaptive beliefs, rigid doctrines, or pathological interpretations can become entrenched if they provide rapid reduction of uncertainty without adequate flexibility.

In shamanic traditions, this vulnerability is explicitly recognized. The period following dismemberment is rarely left unstructured. Instead, it is embedded within ritual frameworks that provide symbolic templates, narrative scaffolding, and socially validated roles. These frameworks do not dictate the content of experience in a literal sense; rather, they bias inference toward culturally intelligible and socially functional configurations. In computational terms, they function as **external priors** that guide the reformation of high-level models.

Importantly, reassembly is not experienced as a simple restoration of agency. Initiates often report that their new capacities (healing, divination, mediation) are not fully "theirs," but remain conditional, relational, or contingent on ongoing practices. This reflects the fact that the new attractor basin may be shallower or more permeable than the original one. The system has learned, implicitly, that its coherence is contingent rather than absolute.

This contingency marks the successful completion of dismemberment. The reassembled world-model is not merely different in content, but altered in its relationship to uncertainty and entropy. Where the pre-initiation model defended itself against collapse, the post-initiation model incorporates collapse as a known possibility. This allows the individual to approach liminal states without being consumed by them, to operate near the edges of stability without losing orientation.

Thus, Section 4 completes the arc from precision collapse through terror, aporia, and into the initial conditions for reassembly. The next major step is to ground these dynamics more explicitly in neurobiology. Section 5 will examine how neuromodulatory systems and large-scale brain networks implement precision control and how their reconfiguration underwrites both the danger and the promise of shamanic dismemberment.

5. Neuromodulation and Network Disintegration

Section 4 described the collapse and incipient reassembly of the world-model at the level of inference and phenomenology. Section 5 grounds these dynamics in **neurobiological mechanism**, focusing on how neuromodulatory systems and large-scale brain networks implement precision control and why their destabilization produces the characteristic features of shamanic dismemberment. The central claim is that dismemberment corresponds to a coordinated breakdown in the systems that normally regulate confidence, salience, and integration across the brain.

5.1 Neuromodulatory Systems as Precision Controllers

The abstract dynamics described in the preceding sections (precision collapse, attractor flattening, and reassembly) must ultimately be implemented in biological mechanisms. In contemporary neuroscience, the most plausible candidates for this role are the **neuromodulatory systems** that regulate gain, learning rate, and signal-to-noise ratios across large portions of the brain. Rather than encoding specific content, these systems control *how much confidence* is assigned to different classes of signals. In predictive processing terms, they are the primary biological substrates of precision control.

Among these systems, three are especially relevant to the dynamics of shamanic dismemberment: noradrenaline, acetylcholine, and dopamine. Each modulates a distinct aspect of inference, and their coordinated dysregulation can account for the characteristic phenomenology of collapse.

The **noradrenergic system**, centered in the locus coeruleus, is closely associated with the detection of unexpected uncertainty. When prediction errors exceed what the current model can absorb, noradrenergic tone increases, promoting arousal, vigilance, and rapid reallocation of attention. This mechanism is adaptive under conditions of environmental volatility, but when engaged globally and persistently it destabilizes existing attractors. Elevated noradrenaline effectively signals that "the model is failing," lowering confidence in prior expectations and increasing exploratory dynamics.

Subjectively, heightened noradrenergic activity corresponds to the early stages of dismemberment: intense alertness, dread, a sense that something is profoundly wrong without knowing what. The pervasive fear reported in initiatory crises does not require a specific threat; it emerges naturally from a system that has detected global model failure but lacks a viable alternative.

The **cholinergic system**, originating in the basal forebrain, modulates the precision of sensory and interoceptive prediction errors. Increased acetylcholine biases inference toward bottom-up input, amplifying the influence of raw sensory signals relative to prior expectations. When cholinergic tone is elevated in the context of weakened high-level priors, perception becomes vivid, intrusive, and unfiltered. Sensory detail intensifies, but without reliable interpretive scaffolding.

This mechanism maps closely onto reports of sensory flooding, bodily distortion, and entoptic phenomena during dismemberment. The initiate is “cut open” perceptually because the filters that normally contextualize sensation have lost authority. Inference becomes dominated by the immediate present, stripped of narrative continuity.

The **dopaminergic system** plays a more complex role, modulating expected precision over beliefs, values, and action policies. Dopamine is involved in assigning salience; determining which signals matter and which can be ignored. During world-model collapse, dopaminergic signaling can become unstable, leading either to a flattening of value (nothing matters) or to aberrant salience (everything matters too much). Both extremes are well-documented in initiatory and psychotic phenomenology.

In the context of dismemberment, dopaminergic dysregulation contributes to the oscillation between nihilistic void and overwhelming significance. The system struggles to assign value in the absence of stable priors, producing experiences of cosmic judgment, testing, or revelation. Mythologically, this is often rendered as weighing, trial, or encounter with supreme authority.

Crucially, these neuromodulatory systems do not operate in isolation. Their interaction determines the overall precision regime of the brain. A state characterized by elevated noradrenaline, heightened acetylcholine, and unstable dopamine is precisely a state in which high-level priors lose authority, low-level signals dominate, and value assignment becomes erratic. This configuration provides a plausible neurobiological substrate for the dismemberment process as a whole.

Understanding neuromodulators as precision controllers clarifies why dismemberment feels involuntary and external. These systems operate largely outside conscious control, adjusting global parameters rather than specific beliefs. When they shift abruptly or globally, the individual experiences changes in perception, affect, and agency as something that *happens to them*, rather than something they choose. In traditional narratives, this loss of internal control is personified as the action of spirits or gods; not as a metaphor, but as a faithful description of how agency is redistributed under these conditions.

5.2 Large-Scale Network Reconfiguration and Functional Dismemberment

While neuromodulatory systems regulate precision globally, their effects are expressed concretely through changes in **large-scale brain network organization**. Contemporary network neuroscience has identified a small number of distributed functional networks whose coordinated activity underwrites coherent cognition. Shamanic dismemberment, as described phenomenologically and computationally in earlier sections, can be understood as a transient breakdown in the coordination of these networks; a process that amounts to a **functional dismemberment** of the cognitive system.

Three networks are especially central to this process: the Default Mode Network (DMN), the Salience Network (SN), and the Frontoparietal Control Network (FPCN). Under ordinary conditions, these networks operate in a dynamic balance that supports stable selfhood, flexible attention, and goal-directed behavior.

The **Default Mode Network**, encompassing medial prefrontal cortex, posterior cingulate cortex, and angular gyrus, is strongly implicated in self-referential processing, autobiographical memory, temporal continuity, and the maintenance of a narrative identity. It provides the background model of "who I am" and "what kind of world this is." High-level priors associated with the world-model are largely instantiated through DMN activity and its coupling with memory systems.

During dismemberment states, DMN coherence is markedly reduced. This decoupling corresponds to the phenomenology of ego dissolution, identity fragmentation, and the loss of temporal continuity. Without a stable DMN-mediated narrative, experiences no longer feel anchored to a persistent self. Thoughts and memories may arise, but they lack ownership and context. This loss is often experienced as death; not metaphorically, but because the computational substrate of personal persistence has ceased to function as an integrator.

The **Salience Network**, anchored in the anterior insula and dorsal anterior cingulate cortex, plays a critical role in detecting behaviorally relevant signals and reallocating attentional and computational resources. It functions as a switchboard, dynamically mediating transitions between internally oriented (DMN) and externally oriented (task-positive) modes of processing. In predictive terms, the salience network participates in precision assignment: it helps determine which prediction errors deserve attention.

In states of world-model collapse, the salience network often becomes hyperactive and dysregulated. Without reliable high-level priors to guide its operation, it flags an excessive number of signals as significant. This produces the characteristic experience of **hyper-meaningfulness without coherence**: everything feels important, threatening, or revelatory, yet nothing fits together. Alternatively, salience may collapse altogether, yielding the opposite phenomenology; emptiness, numbness, or nihilism. Both patterns are observed in dismemberment accounts and can be understood as different failure modes of salience regulation under extreme uncertainty.

The **Frontoparietal Control Network** supports executive function, metacognitive regulation, and the flexible coordination of belief updating and action selection. It enables the system to evaluate competing interpretations, inhibit maladaptive impulses, and maintain goal-directed policies. In active inference terms, it contributes to the reliable evaluation of expected free energy across policies.

During dismemberment, the FPCN loses its coordinating role. Executive oversight diminishes, not because the system lacks capacity, but because the criteria for control have dissolved. When the world-model collapses, there is no stable set of goals or values against which control can be exercised. This loss is experienced subjectively as helplessness or surrender: the initiate cannot decide what to think or do because decision-making itself presupposes a world that no longer exists.

The combined effect of these network disruptions is a state in which no single system retains global authority. Self-representation fragments (DMN), significance becomes unstable or excessive (SN), and top-down regulation fails (FPCN). Cognition does not stop, but it loses its

hierarchical organization. From the inside, this feels like being torn apart; not in a metaphorical sense, but because the functional integration that normally unifies experience has disintegrated.

Importantly, this disintegration is reversible. Neuroimaging studies of psychedelic states, acute psychosis, and recovery from dissociative crises suggest that large-scale networks can reconstitute themselves, sometimes in altered configurations. Shamanic traditions appear to have recognized this plasticity intuitively, developing practices that guide the re-coupling of networks in socially adaptive ways.

This network-level perspective reinforces the central claim of the paper: shamanic dismemberment is not a symbolic flourish layered atop cognition, but a lived report of what it feels like when the brain's integrative architecture temporarily comes apart. In the next section, we examine how the externalization of agency and the experience of gods, spirits, or forces arises naturally from this loss of internal coordination.

5.3 Externalized Agency and the Experience of Non-Human Actors

One of the most distinctive features of shamanic dismemberment narratives is the presence of **non-human agents** (spirits, gods, ancestors, animals, or cosmic forces) that appear to act upon the initiate with autonomy, intention, and authority. These entities are not typically experienced as hallucinated decorations of an otherwise intact self, but as *primary actors* responsible for the initiate's destruction and reconstitution. Within the framework developed here, this externalization of agency follows directly from the breakdown of internal integrative control.

Agency attribution is itself an inferential achievement. Under ordinary conditions, actions, thoughts, and intentions are bound to a self-model that predicts their origin and consequences. This binding depends on the coordination of multiple systems: interoceptive prediction (sense of effort and intention), motor planning, outcome prediction, and narrative integration. When these systems are synchronized, actions are experienced as "mine," even when they are automatic or habitual.

During dismemberment, this synchronization fails. As shown in Section 5.2, the collapse of frontoparietal control undermines metacognitive oversight, while disruption of the default mode network dissolves the narrative continuity that normally anchors agency. Actions, thoughts, and sensations continue to arise, but the system can no longer reliably attribute them to a unified self. From an inferential standpoint, the simplest explanation for this mismatch is that the source of agency lies *elsewhere*.

Predictive processing accounts of agency emphasize that the sense of authorship arises when predicted and actual outcomes of action align within an expected precision range. When this alignment fails (particularly under conditions of heightened uncertainty) the system seeks alternative causal explanations. In dismemberment states, internal models of self-agency lose precision, while external models remain available. The result is a reattribution of causality to external agents that appear more coherent, powerful, or intentional than the fragmented self.

Crucially, this reattribution is not arbitrary. Cultural priors strongly shape the form that externalized agency takes. In societies with established shamanic cosmologies, agency is attributed to spirits, ancestors, or animal powers that already occupy causal roles within the shared worldview. In other contexts, similar experiences may be framed in theological, demonic, or abstract terms. What remains invariant is not the content of the agents, but their *function*: they explain why events are happening when the self can no longer do so.

This mechanism clarifies why dismemberment is often described as something that happens *to* the initiate rather than something they choose or enact. The initiate is seized, judged, cut apart, tested, or instructed. These experiences map directly onto the computational reality of a system that has lost endogenous policy evaluation. When internal mechanisms for selecting and justifying actions fail, the experience of control shifts outward.

The perceived intentionality of these agents further reflects the system's attempt to restore coherence. Intentional agents provide a compact explanatory model for complex, unpredictable events. By attributing purpose and intelligence to the forces at work, the system reduces uncertainty and regains a minimal sense of order. In this way, gods and spirits function as provisional stabilizers during collapse; not as errors, but as adaptive inferences under extreme conditions.

This perspective also explains why many traditions emphasize the danger of resisting these agents. To fight the spirits is to attempt to reassert self-agency prematurely, before the cognitive conditions for coherent control have been restored. Surrender, in contrast, allows the collapse to complete and opens the possibility of guided reassembly. What is framed mythologically as obedience or humility can thus be understood computationally as the suspension of maladaptive control attempts.

Finally, this account sheds light on the persistence of divine or spirit agency even after reassembly. Post-initiation, individuals often report that their capacities depend on ongoing relationships with non-human agents. From a cognitive standpoint, this reflects a lasting alteration in the self-model: agency is no longer fully centralized. The individual has learned, through collapse, that control is distributed and contingent. External agents remain as symbolic interfaces to processes that were once taken for granted but are now recognized as autonomous and powerful.

In sum, the experience of gods and spirits during shamanic dismemberment is not a regression to pre-rational thought, nor a mere cultural overlay on hallucination. It is the natural outcome of precision collapse and network disintegration in a system that must still explain its own activity. Externalized agency is the mind's way of maintaining causal intelligibility when the self can no longer serve as the locus of control.

With the neurobiological and phenomenological mechanisms of collapse now specified, the next section turns to a broader dynamical question: how entropy operates as a vector that both enables and threatens transformation, and why shamanic traditions consistently frame dismemberment as a descent into darkness rather than an ascent into insight.

6. Entropy, Attractors, and the Role of *Sol Niger*

The dynamics described in the preceding sections can now be unified under a single conceptual axis: **entropy as a directional force in cognitive transformation**. Shamanic dismemberment is not merely accompanied by disorder; it *requires* a controlled increase in entropy to dismantle entrenched structures of inference. Yet this increase is neither random nor terminal. It functions as a vector; a temporary driver that enables escape from a dominant attractor and opens the possibility of reorganization.

6.1 Entropy as a Vector, Not an Endpoint

Discussions of collapse, disorder, and dissolution often invoke entropy as a terminal condition; a slide into chaos or meaninglessness from which recovery is uncertain or impossible. In the framework developed here, however, entropy plays a more precise and constructive role. It functions not as an endpoint, but as a **vector**: a directional force that enables escape from entrenched cognitive attractors and makes large-scale reorganization possible.

In dynamical systems terms, entropy corresponds to an increase in the degrees of freedom available to the system. When precision regimes are stable, cognitive dynamics are tightly constrained: trajectories are channeled toward familiar interpretations, actions, and meanings. This constraint is adaptive for everyday functioning, but it also renders the system resistant to deep change. Entrenched attractors (particularly those governing identity and worldview) can persist even when they are no longer optimal, because the energy barriers separating them from alternatives are too high to cross through incremental updating alone.

Entropy enters the system when these constraints are relaxed. Precision collapse flattens the inferential landscape, reducing barrier heights and allowing trajectories to explore regions of state space that are normally inaccessible. This increase in entropy is experienced subjectively as confusion, instability, or darkness, but computationally it corresponds to **search**. The system is no longer confined to a narrow corridor of interpretations; it is sampling broadly, albeit without immediate guidance.

This framing clarifies why shamanic traditions consistently emphasize descent, dissolution, and darkness rather than illumination or ascent at the onset of transformation. The descent into entropy is not a failure of insight but a prerequisite for it. Without a sufficient increase in entropy, the system remains trapped in its existing attractor, capable only of superficial modification. Dismemberment, in this sense, is the forced expansion of the search space.

Crucially, entropy must be **temporary and bounded**. If the system remains in a high-entropy state indefinitely, it cannot converge on a new stable configuration. In such cases, exploration degenerates into noise, and the individual may experience chronic fragmentation or psychosis. Conversely, if entropy is insufficient (if collapse is partial or prematurely arrested) the system will simply revert to its prior configuration, and transformation will fail. Shamanic dismemberment narratives are explicit about this danger: the initiate may die, go mad, or be lost if the descent is mishandled.

This balance is echoed in optimization theory, where techniques such as simulated annealing deliberately introduce noise to escape local minima, then gradually reduce it to allow convergence. The parallel is not merely metaphorical. In both cases, effective transformation depends on modulating entropy over time: increasing it enough to permit escape, then decreasing it in a controlled manner to enable stabilization. The *sol niger* corresponds to the peak of this entropy curve; the point at which old structures have dissolved but new ones have not yet formed.

Understanding entropy as a vector rather than an endpoint also resolves a common misconception about initiatory experiences. These states are not valued because they are chaotic, but because they *pass through* chaos. The darkness is instrumental, not celebratory. Traditions that romanticize dissolution without providing means of reassembly risk mistaking a mechanism for a destination.

In the context of the present argument, entropy provides the missing link between precision collapse and transformation. It explains how dismemberment can both destroy and enable, why collapse feels catastrophic yet generative, and why cultures that engaged these states developed elaborate temporal and ritual structures to regulate their duration. The next section examines how this entropic expansion reshapes the attractor landscape itself, altering the geometry of possible futures and determining which forms of reassembly become available.

6.2 Attractor Flattening, Metastability, and the Threshold of Transformation

When entropy increases through precision collapse, its primary effect is not randomization but **attractor flattening**. In cognitive dynamical systems, attractors correspond to stable regimes of inference and action; their depth reflects the strength of constraints that pull trajectories back toward familiar patterns. Section 6.1 established entropy as the vector that loosens these constraints. The present section specifies how this loosening reshapes the inferential landscape and why the resulting condition is best described as **metastable** rather than chaotic.

In a stable world-model, the attractor basin governing perception, identity, and meaning is deep and steep. Deviations are rapidly corrected, and the system returns to its habitual configuration. Precision weighting is the principal mechanism by which this geometry is maintained: high-level priors exert strong corrective force, preventing excursions into alternative interpretations. Under these conditions, the system exhibits robustness but limited plasticity.

As precision collapses, this geometry changes. High-level attractors lose curvature; their basins become shallower and wider. The forces that once constrained inference weaken, allowing trajectories to drift rather than snap back. Importantly, this does not eliminate structure altogether. The system does not immediately dissolve into noise. Instead, it enters a regime of **metastability**, characterized by transient patterns that form, dissolve, and reform without settling into a dominant configuration.

Metastability is a well-characterized property of complex systems operating near critical points. In such regimes, the system alternates between relative order and disorder, displaying heightened sensitivity to perturbation. Small inputs can have outsized effects, and local fluctuations can

propagate globally. From the inside, this feels like radical openness combined with instability: experiences arise with unusual intensity and immediacy, yet fail to cohere or persist.

This condition maps closely onto shamanic descriptions of the liminal phase following dismemberment. Initiates often report rapid shifts in perception, identity, and meaning; visions that appear and vanish, presences that approach and withdraw, insights that dissolve before they can be grasped. These are not signs of failed transformation, but of a system hovering near a bifurcation point. The old attractor has lost its hold, but no new basin has yet deepened enough to claim dominance.

Attractor flattening also explains the profound **suggestibility** observed during and after dismemberment. When the landscape is flat, there is little resistance to directional influence. Social cues, symbolic forms, and environmental constraints can bias trajectories decisively. This sensitivity is neither inherently positive nor negative; it is simply a consequence of reduced curvature in the inferential space. What matters is the nature of the perturbations introduced at this stage.

The threshold of transformation is crossed when a nascent attractor begins to stabilize; when repeated inference under similar constraints gradually increases curvature around a new configuration. This stabilization does not require certainty or clarity at first. It begins as a weak preference, a recurring motif, a role tentatively inhabited. Over time, as precision is selectively restored and entropy reduced, this basin deepens, and the system commits to a new mode of organization.

Failure at this stage can occur in two primary ways. If entropy remains too high, the system may never converge, resulting in chronic metastability; experienced as ongoing fragmentation or psychosis. If entropy collapses too quickly or rigidly, the system may stabilize around a brittle or maladaptive attractor, such as a delusional belief or rigid ideology. Both outcomes are well attested in ethnographic and clinical records and underscore the delicacy of the transition.

The concept of metastability thus provides a precise dynamical description of the liminal space that shamanic traditions emphasize. The initiate stands between worlds not as a metaphor, but as a literal description of a system poised between attractors. Transformation depends on remaining within this unstable region long enough for new structures to emerge, yet not so long that coherence is lost entirely.

6.3 Success and Failure Conditions in Entropic Transitions

The preceding sections have characterized shamanic dismemberment as an entropic transition through a metastable cognitive regime in which entrenched attractors dissolve and new ones may form. What remains to be specified are the **conditions under which such transitions succeed or fail**. This question is not ancillary but central: the same dynamics that enable deep transformation also render the system vulnerable to collapse, chronic instability, or pathological fixation. Understanding these conditions clarifies why shamanic traditions treat dismemberment as both sacred and dangerous.

From a dynamical perspective, success requires that entropy be **modulated rather than maximized**. As described in Sections 6.1 and 6.2, entropy must rise enough to flatten existing attractors and permit exploration, but not so much that the system loses all capacity for convergence. In cognitive terms, this means that while high-level precision must be sufficiently reduced to allow the old world-model to dissolve, some constraints (biological, social, or environmental) must remain operative to prevent unbounded drift.

One common failure mode arises when entropy remains excessively high for too long. In this case, metastability never resolves into a new attractor. The system continues to cycle through transient configurations without consolidation. Subjectively, this is experienced as persistent fragmentation, derealization, or overwhelming salience without coherence. Clinically, this trajectory resembles chronic psychosis or severe dissociative disorders. The system is trapped in exploration without learning, unable to reduce free energy through model formation.

A second failure mode occurs at the opposite extreme: **premature re-stabilization**. Here, the system exits the high-entropy regime too quickly, often by latching onto a rigid interpretation that offers rapid reduction of uncertainty. This may take the form of a fixed delusional belief, a grandiose identity, or an inflexible doctrine. While such attractors restore coherence, they do so at the cost of flexibility and adaptability. The resulting stability is brittle; it resists further updating and may require increasing defensive effort to maintain.

Successful transformation occupies a narrow corridor between these extremes. In this corridor, entropy is gradually reduced while precision is selectively reinstated. The system begins to privilege certain interpretations or roles, but remains open to revision. This gradual deepening of a new attractor allows coherence to emerge without foreclosure. Importantly, the resulting world-model is often **shallower and more permeable** than the original one, reflecting a lasting awareness of contingency gained through collapse.

Shamanic traditions appear acutely attuned to this balance. Ethnographic accounts emphasize that initiation is not guaranteed to succeed; novices may become ill, lose their sanity, or die. This recognition is not merely symbolic but pragmatic. It reflects an understanding that the transition involves genuine risk, and that survival depends on careful regulation of exposure, duration, and context.

Several variables influence success. Duration is critical: the entropic phase must be long enough to exhaust the old model but not so long that biological or psychological resources are depleted. Intensity matters as well: insufficient collapse leaves the old attractor intact, while excessive collapse overwhelms the system's capacity to reorganize. Individual differences (developmental history, resilience, social support) also modulate the likelihood of successful reassembly.

Perhaps most importantly, **external constraints** play a decisive role. In the absence of reliable internal policy evaluation, the system relies on its environment to shape trajectories. This insight anticipates the central argument of the next section: that ritual functions as an external mechanism for regulating entropy and guiding attractor formation. Ritual does not cause transformation, but it channels it, narrowing the range of possible outcomes and increasing the probability of adaptive reassembly.

In sum, the success or failure of shamanic dismemberment hinges on the controlled modulation of entropy across time. Collapse must be deep enough to dismantle entrenched structures, yet bounded enough to permit recovery. This delicate balance explains both the reverence and the caution surrounding initiation, and it underscores the inadequacy of accounts that treat dismemberment as either pure pathology or pure revelation. It is neither. It is a high-risk transition in the dynamics of human cognition.

7. Ritual as Policy-Space Constraint

The preceding sections have shown that shamanic dismemberment involves a collapse of high-level precision, attractor flattening, and a period of metastable exploration in which internal mechanisms for evaluating belief and action are unreliable. This creates the central problem of initiation: **how can a system that has lost the capacity to evaluate its own policies survive long enough to reorganize?** The answer proposed here is that ritual functions as an external control structure that constrains action, attention, and interpretation precisely when endogenous control fails.

This section advances the paper's most novel claim: that ritual is best understood not as symbolic performance or social dramatization, but as a **distributed regulatory mechanism that restricts policy space during periods of inferential collapse**. In active inference terms, ritual temporarily replaces internal policy evaluation with externally imposed constraints, allowing transformation to proceed without catastrophic drift.

7.1 Policy Collapse During Dismemberment

To understand why ritual becomes necessary during shamanic dismemberment, it is first necessary to specify what, precisely, has failed at the level of action and decision-making. As argued in earlier sections, dismemberment is not only a collapse of perception or belief, but a collapse of **policy evaluation** itself. The system does not merely lose confidence in what is true; it loses confidence in what to do.

Within the active inference framework, policies are selected by minimizing expected free energy; a quantity that integrates predicted outcomes, preferences, and uncertainty reduction. Under ordinary conditions, this process allows the agent to rank possible actions according to their anticipated consequences and epistemic value. Crucially, this ranking depends on stable high-level priors: assumptions about identity, goals, social norms, and the causal structure of the world. When these priors are intact, policy selection feels effortless and self-authored.

During shamanic dismemberment, this evaluative machinery breaks down. As high-level precision collapses, the system can no longer reliably estimate the expected free energy of competing policies. Preferences flatten or become incoherent; anticipated outcomes lose meaning; epistemic value becomes difficult to assess because the system no longer knows what counts as relevant information. In formal terms, the policy posterior becomes noisy and unstable, with no clear minimum toward which inference can converge.

Subjectively, this failure is experienced as a loss of agency. Initiates report paralysis, surrender, or compulsion; not because action is impossible, but because *choice* has lost its grounding. Actions may still occur, but they are no longer experienced as chosen on the basis of reasons. Instead, behavior feels driven, automatic, or imposed. This phenomenology aligns closely with the externalization of agency discussed in Section 5.3: when internal policy evaluation fails, the system attributes control to external forces.

The consequences of policy collapse are severe. Without a reliable mechanism for selecting actions, the system risks entering one of two maladaptive regimes. In one, exploration becomes chaotic: actions are taken without constraint, leading to exhaustion, injury, or further destabilization. In the other, action ceases altogether: the system freezes, unable to move forward or backward. Both outcomes threaten survival, particularly in environments where prolonged immobility or uncontrolled behavior carries real physical risk.

Importantly, policy collapse also affects interpretation, not just overt action. Attention itself can be understood as a form of action; an internal policy that determines which signals are amplified and which are ignored. When policy evaluation fails, attention becomes unstable. The initiate may be overwhelmed by intrusive thoughts, sensations, or images, unable to prioritize or inhibit them. This further exacerbates entropy, pushing the system toward either runaway salience or total withdrawal.

This analysis clarifies a critical point: the danger of dismemberment does not lie solely in perceptual distortion or belief instability, but in the loss of **normative guidance**; the ability to distinguish appropriate from inappropriate, meaningful from meaningless, safe from unsafe. A system in this state cannot be trusted to regulate itself. Left to its own devices, it is unlikely to converge on a viable attractor.

It is precisely at this juncture that ritual becomes indispensable. If internal policy selection is unreliable, then the only way to prevent catastrophic drift is to **externalize control**. Ritual does not restore agency directly; instead, it suspends the requirement for endogenous choice by constraining the available policy space. The initiate is not asked to decide what to do or what to believe. Those decisions are temporarily offloaded to a structured environment that dictates action, attention, and interpretation.

In this light, the passivity emphasized in many initiation accounts (obedience, surrender, submission) is not moralistic or symbolic, but functional. It reflects an accurate assessment of the system's state: agency has not been transcended, but temporarily disabled. Attempting to exercise autonomous control during this phase would be analogous to allowing a destabilized control system to regulate itself mid-failure.

7.2 Ritual as Externalized Control Theory

If dismemberment entails a collapse of endogenous policy evaluation, ritual can be understood as the **externalization of control** during a period when internal regulation is unreliable. From this perspective, ritual is not primarily expressive or symbolic, but operational: it constrains the system's degrees of freedom at precisely the point where unconstrained exploration would be catastrophic.

In active inference terms, the policy space available to an agent is ordinarily vast. Even in simple environments, countless combinations of action, attention, and interpretation are possible. Under normal conditions, this space is navigated efficiently by minimizing expected free energy. During dismemberment, however, this internal navigation system fails. Ritual intervenes by

replacing open-ended policy selection with a **restricted, low-dimensional policy set** imposed from outside the agent.

This restriction operates along multiple axes simultaneously. At the level of overt behavior, ritual prescribes specific actions; fasting, isolation, chanting, immobility, repetition, or submission to a guide. These actions are often simple, stereotyped, and repetitive, not because they are symbolically rich, but because they reduce choice. By narrowing the action space, ritual prevents chaotic exploration and limits the accumulation of additional prediction error.

At the level of attention, ritual structures what may be attended to and how. Rhythmic sounds, repetitive movements, controlled sensory environments, and focal symbols act as attentional attractors. They bind attention to a limited set of inputs, preventing it from being hijacked by the uncontrolled salience that characterizes collapse. In computational terms, ritual introduces exogenous constraints on attentional policies, stabilizing precision allocation when endogenous mechanisms are compromised.

Interpretation is constrained as well. Ritual frameworks provide predefined narratives for what is happening (death, descent, testing, rebirth) even if the initiate does not consciously endorse them at the time. These narratives function as **interpretive priors** that limit the range of possible inferences. Instead of having to determine what an experience means, the initiate is told, implicitly or explicitly, what kinds of meanings are available. This does not eliminate uncertainty, but it channels it.

Taken together, these constraints transform an unbounded inferential crisis into a **guided trajectory** through state space. The system is still destabilized, still entropic, but its motion is no longer arbitrary. The external structure provided by ritual replaces the internal structure that has temporarily collapsed. In effect, ritual acts as a surrogate controller, maintaining viability until endogenous control can be reestablished.

This framing also explains why ritual practices often appear excessive, rigid, or arbitrary to outside observers. From a symbolic standpoint, their details may seem overdetermined or opaque. From a control-theoretic standpoint, their specificity is precisely the point. High specificity reduces ambiguity, minimizes choice, and thereby limits the accumulation of error in a system already operating near its tolerance threshold.

Importantly, ritualized control is not intended to be permanent. Its function is transitional. As the system begins to reassemble (precision is selectively restored and a new attractor starts to deepen) endogenous policy evaluation can gradually resume. At this point, ritual constraints may be relaxed or transformed into ongoing practices that support the new configuration without fully supplanting agency.

Understanding ritual as externalized control theory reframes a wide range of practices that have often been dismissed as superstition or social theater. It suggests that these practices are best understood as **technologies of regulation** designed to shepherd minds through states of extreme instability. The next section examines how ritual also operates at the social and temporal scale,

embedding individual collapse within collective structures that further reduce risk and shape outcomes.

7.3 Social, Symbolic, and Temporal Scaffolding

While Section 7.2 emphasized ritual as an externalized control mechanism acting on individual action and attention, ritual also operates across **social and temporal dimensions**. These dimensions are not ancillary; they are critical for stabilizing trajectories through collapse and shaping the form that reassembly ultimately takes. When internal policy evaluation fails, control must be distributed not only across behaviors, but across time and social structure.

At the social level, initiation rituals embed the individual's collapse within a **collective framework of roles and expectations**. The initiate is rarely alone in an absolute sense; even when physically isolated, they are held within a network of shared understanding. Elders, shamans, or ritual specialists function as external regulators who temporarily assume responsibility for interpretation and containment. They do not merely observe the initiate; they stand in for the initiate's absent metacognitive functions.

This social embedding accomplishes several computational functions. First, it offloads uncertainty. When the initiate cannot evaluate what is happening or what it means, others can. Second, it limits catastrophic inference. Experiences that might otherwise be interpreted as personal annihilation, madness, or divine punishment are reframed as expected stages of initiation. Third, it provides an external memory. The initiate does not need to track progress or anticipate outcomes; the group holds the sequence.

Social scaffolding also stabilizes identity during its temporary dissolution. Even as the initiate's self-model collapses internally, the community continues to treat them as a specific person undergoing a recognized process. This continuity functions as a **placeholder identity**, preserving the possibility of reassembly. The individual may not know who they are, but others do, and this external recognition constrains the space of possible outcomes.

Symbolic scaffolding operates in parallel. Symbols (mythic figures, cosmological maps, ritual objects) provide structured representational forms that can organize experience when abstract reasoning fails. Importantly, symbols do not need to be consciously interpreted to exert influence. Their power lies in their capacity to **bias inference implicitly**, shaping perception and affect without requiring propositional understanding. A mask, a drumbeat, a mythic narrative does not explain collapse; it gives it shape.

From a predictive processing standpoint, symbols function as compressed priors. They reduce the dimensionality of experience by grouping otherwise unmanageable sensations into recognizable patterns. A terrifying presence becomes a known spirit; fragmentation becomes dismemberment; darkness becomes descent. These symbolic compressions do not eliminate uncertainty, but they render it tractable.

Temporal scaffolding is equally essential. Initiation rituals impose a **sequence** on what would otherwise be an undifferentiated flux of experience. Phases are marked (separation, ordeal,

reintegration) not merely for narrative coherence, but to regulate duration and pacing. Time in collapse is often experienced as distorted or absent; ritual reintroduces time as an external structure. The initiate may not feel that the ordeal will end, but the ritual ensures that it does.

This temporal containment is critical for preventing both premature exit and prolonged destabilization. By specifying when certain phases begin and end, ritual modulates entropy over time, allowing collapse to deepen sufficiently before reassembly is encouraged. In this sense, ritual acts as a **temporal governor**, controlling not only what happens but for how long it happens.

Taken together, social, symbolic, and temporal scaffolding transform dismemberment from an uncontrolled breakdown into a **distributed process** shared across individuals, artifacts, and time. The burden of regulation is no longer borne by the initiate alone. Instead, cognition is extended into the environment, consistent with theories of distributed and enactive cognition.

This distributed regulation explains why similar collapse dynamics can have radically different outcomes depending on context. Where social recognition, symbolic framing, and temporal containment are present, reassembly becomes likely. Where they are absent (as in many modern contexts) collapse is more likely to be interpreted as pathology and to result in chronic dysfunction.

7.4 Ritual Versus Pathology: Divergent Trajectories from the Same Collapse

The framework developed thus far makes it possible to address a long-standing and often contentious question: **why do experiences that resemble shamanic dismemberment sometimes lead to transformation and social integration, and at other times to chronic pathology?** Rather than treating initiation and pathology as categorically distinct phenomena, the present account suggests that they arise from **the same underlying dynamics**, diverging only in the conditions that shape their trajectories.

At the level of mechanism, there is no sharp boundary between initiatory collapse and pathological breakdown. Both involve precision collapse at high levels of the hierarchy, attractor flattening, and a period of metastable exploration. Both can feature terror, fragmentation, externalized agency, and the loss of meaning. The difference lies not in the initial event, but in whether the system is afforded **sufficient external constraint and guided reassembly**.

In pathological trajectories, collapse occurs in the absence of reliable scaffolding. Internal policy evaluation fails, but no external structure replaces it. Action, attention, and interpretation remain unconstrained, allowing entropy to rise unchecked. In such conditions, the system is vulnerable to two common outcomes. One is chronic instability: ongoing fragmentation, oscillation between transient interpretations, and failure to converge on a stable attractor. The other is rigid premature stabilization: the rapid adoption of a delusional belief or identity that restores coherence at the cost of flexibility.

Clinical models often focus on the content of pathological beliefs; whether they are false, bizarre, or socially inappropriate. From the present perspective, content is secondary. What matters is

how coherence was restored. In pathological re-stabilization, coherence is achieved through excessive precision assigned to a narrow set of interpretations, creating an attractor that is deep but brittle. Such attractors resist revision and require constant defensive maintenance, which can exacerbate distress and isolation over time.

By contrast, ritualized initiation deliberately engineers the conditions for **adaptive re-stabilization**. As described in Sections 7.2 and 7.3, ritual constrains policy space, distributes regulation across social and symbolic systems, and modulates entropy temporally. These constraints do not eliminate collapse, but they ensure that it unfolds within bounds that preserve the possibility of recovery. The initiate is not left alone to invent meaning under conditions of maximal uncertainty; meaning is provisionally supplied, shared, and socially validated.

A further distinction concerns **recognition and role assignment**. In initiatory contexts, the collapse is anticipated and named. The individual is recognized as undergoing a legitimate process, and the outcome (if successful) is a socially intelligible role. This recognition functions as a powerful prior, biasing reassembly toward functional configurations. In pathological contexts, collapse is often unrecognized or stigmatized, depriving the individual of interpretive and social resources. The system must then stabilize itself without guidance, increasing the likelihood of maladaptive outcomes.

Temporal structure also differentiates ritual from pathology. Initiation imposes an arc: collapse is followed by reintegration, and reintegration is expected. Pathological breakdowns often lack such temporal containment. Without a shared expectation of return, the system may either linger indefinitely in metastability or lock into rigid certainty as a defense against uncertainty.

Importantly, this analysis does not romanticize initiation or trivialize pathology. Initiatory collapse remains dangerous, and many traditions acknowledge that not all initiations succeed. Nor does the framework imply that pathological states can or should be induced or reframed as spiritual opportunities. Rather, it suggests that **the same cognitive mechanisms underlie both**, and that outcomes depend critically on the presence of external regulatory structures.

This reframing has significant implications. It challenges the assumption that modern societies are categorically safer because they suppress initiatory collapse. Instead, it suggests that collapse may still occur (through trauma, isolation, or destabilizing life events) but without the cultural technologies needed to manage it. In such contexts, pathology may be less a deviation from human potential than a predictable outcome of unmanaged transformation dynamics.

8. Myth and Deity Figures as Priors and Control Interfaces

The preceding sections have argued that ritual functions as an externalized control system that constrains policy space during periods of inferential collapse. This section extends that argument to the symbolic and mythic content that accompanies ritual, proposing that gods, spirits, and cosmological narratives function as priors and control interfaces rather than as metaphors, superstitions, or epiphenomenal imagery. Within the predictive processing framework, mythic figures are best understood as culturally stabilized representations that guide inference and agency when ordinary self-models have disintegrated.

8.1 Deities as Personified Precision Regulators

Across cultures, shamanic dismemberment narratives are populated by a recurring class of figures: gods, spirits, ancestors, animal powers, judges, or cosmic technicians who dismantle and reconstruct the initiate. These figures are often described with remarkable specificity; not merely as presences, but as agents who cut, weigh, test, teach, command, or bestow new capacities. From the perspective developed in this paper, such figures are neither hallucinated ornaments nor symbolic metaphors layered atop experience. They are **personified control interfaces** that emerge when ordinary self-models and endogenous regulators fail.

In predictive processing terms, deities and spirits function as **priors over agency and meaning** at precisely the point where internal priors have lost authority. When the high-level self-model collapses, the system still requires explanatory structures to organize experience and regulate action. Rather than operating without priors (a computational impossibility) the system recruits alternative priors that are culturally available, socially shared, and robust under uncertainty. Mythic agents supply such priors in a compact and actionable form.

Crucially, these agents are not arbitrary. Across traditions, they are consistently associated with **thresholds, mediation, and transformation**. Figures such as Odin/Wotan, Hermes/Mercury, Thoth, Cardea, or Solomon are not primarily moral exemplars; they are operators of transitions. They govern borders between worlds, life and death, chaos and order, ignorance and knowledge. This functional specialization mirrors the role they play in cognition: they regulate transitions between inferential regimes when the ordinary hierarchy has collapsed.

Personification serves a critical computational purpose. Complex regulatory processes (precision allocation, error weighting, policy gating) are difficult to represent abstractly, especially under conditions where propositional reasoning is impaired. By rendering these processes as intentional agents, the system gains a way to interact with them. One can submit, negotiate, resist, or obey a god; one cannot easily do so with an abstract gain parameter. Deities thus act as **handles** on otherwise inaccessible control dynamics.

This perspective explains why dismemberment is often experienced as being performed by others rather than by the self. Precision withdrawal, attractor flattening, and policy collapse are not experienced as internal adjustments because the mechanisms that would normally integrate them into the self-model are offline. The resulting changes are therefore inferred as externally

caused. Gods cut because precision has been removed; spirits weigh the soul because value assignment is unstable; ancestors instruct because new priors must be installed.

Importantly, the authority of these agents is not merely imposed; it is inferentially necessary. In a state of maximal uncertainty, authoritative agents provide a way to reduce ambiguity without requiring deliberation. Their commands and judgments substitute for internal evaluation, allowing action to continue in a constrained manner. In this sense, divine authority is not an illusion but a functional property of the system under collapse: authority is whatever can reliably guide behavior when internal criteria have dissolved.

This account also clarifies why different cultures populate the same structural roles with different figures. The specific identities of gods and spirits vary, but their computational function does not. Each tradition supplies agents capable of governing collapse and reassembly according to locally intelligible rules. What matters is not who the god is, but what control role they play within the inferential economy of transformation.

By treating deities as personified precision regulators and control interfaces, we can preserve the experiential reality of divine encounter without committing to metaphysical claims beyond the scope of this paper. More importantly, we can explain why such encounters are not optional embellishments but integral components of successful initiation. When the self cannot govern itself, governance must come from elsewhere.

8.2 Entoptic Phenomena and Pre-Semantic Representational Structure

Alongside encounters with mythic agents, shamanic dismemberment narratives frequently report encounters with **geometric forms, luminous patterns, grids, tunnels, spirals, and glyph-like shapes** that appear independent of cultural iconography. These phenomena (often described as primordial signs, runes, divine writing, or the fabric of reality itself) have been documented cross-culturally and correspond closely to what vision science terms **entoptic phenomena**. Within the present framework, these experiences mark the exposure of **pre-semantic representational structure** following the collapse of high-level meaning.

Under ordinary conditions, perceptual experience is dominated by semantic compression. High-level priors rapidly organize sensory input into objects, scenes, and narratives, suppressing awareness of the low-level constraints that make perception possible in the first place. The brain's representational primitives (retinotopic mappings, orientation columns, oscillatory harmonics) remain invisible because they are successfully explained away by higher-order models.

During shamanic dismemberment, this explanatory suppression fails. As semantic and narrative priors lose precision, perception regresses (not developmentally, but hierarchically) toward its underlying structural constraints. Entoptic forms emerge not because the system is inventing new content, but because **it can no longer maintain the abstractions that normally conceal its own architecture**.

From a predictive processing standpoint, these forms can be understood as the **basis functions** of perception: stable, low-level regularities that persist even when higher-level interpretations collapse. Spirals, lattices, tunnels, and zigzags reflect the geometry of cortical organization and sensory transduction rather than culturally learned symbols. Their cross-cultural consistency supports this interpretation; they appear reliably wherever semantic control is sufficiently weakened.

This exposure of pre-semantic structure explains why such forms are often interpreted as **primordial language** or the "alphabet of creation." In Genesis, creation begins with separation and ordering prior to naming. In alchemical and Hermetic traditions, divine writing precedes articulated meaning. In Norse myth, Odin acquires runes only after his ordeal of dissolution. These traditions converge on the intuition that beneath language lies a more fundamental representational layer; one that structures experience before it is named.

Importantly, entoptic phenomena are not neutral. They carry **high inferential stability** under collapse because they are among the few patterns that remain invariant when semantic priors fail. As such, they become natural anchors for reassembly. The system latches onto what persists. This anchoring helps explain why geometric symbols, mandalas, and sigils recur as focal elements in ritual contexts: they stabilize attention without imposing narrative meaning prematurely.

The pre-semantic character of these forms also clarifies why they are frequently associated with awe rather than comprehension. They are experienced as meaningful without being interpretable. This combination (salience without semantics) is characteristic of a system in the early stages of reorganization, where structure has reappeared but interpretation has not yet caught up.

Crucially, this phase is not a regression to primitive cognition. It is a **temporary exposure of representational infrastructure** normally hidden by successful inference. The initiate is not returning to childhood perception, but encountering the constraints that make any perception possible. This distinction matters, because it reframes such experiences as encounters with cognitive necessity rather than cultural fantasy.

Entoptic phenomena thus occupy a pivotal position in the dismemberment sequence. They appear after semantic collapse but before full reassembly, providing a bridge between chaos and order. They demonstrate that even at the nadir of meaning, cognition does not dissolve into formlessness. Structure remains; and it is from this structure that new world-models can be built.

8.3 Myth as Convergence Bias and Posterior Stabilization

If deities function as personified control interfaces and entoptic forms expose pre-semantic structure, myth provides the final integrative layer: a **convergence bias** that guides reassembly toward culturally viable and socially intelligible world-models. Within the predictive processing framework, myth operates not as an explanatory story about events, but as a high-level prior that shapes how unstable inference converges after collapse.

Following dismemberment, the cognitive system occupies a metastable regime in which multiple interpretations compete without clear resolution. Precision is only partially restored, and the inferential landscape remains relatively flat. In this state, small biases can have disproportionate effects. Myth supplies such biases in a structured, redundant, and socially reinforced form. It narrows the space of plausible reconstructions without fully determining their content.

Myth achieves this by providing **canonical trajectories** through collapse and return. Narratives of descent, ordeal, judgment, and rebirth encode expectations about what kinds of experiences may occur and how they relate to one another. These expectations function as priors over temporal sequence and causal structure. When the initiate encounters terror, fragmentation, or void, myth frames these not as terminal failures but as necessary stages. This framing reduces the risk of catastrophic inference (such as interpreting collapse as permanent annihilation) and thereby stabilizes learning.

Importantly, myth does not eliminate ambiguity. It does not specify exactly what the initiate will see or feel. Instead, it constrains the *interpretive degrees of freedom* available during reassembly. In Bayesian terms, myth shapes the posterior by biasing which hypotheses gain traction as precision returns. It does not force convergence, but it makes some attractors more likely than others.

This mechanism explains why mythic content is often **overdetermined and repetitive**. The same motifs (death, dismemberment, descent, encounter, gift, return) recur across stories, songs, and rituals. Redundancy increases robustness: the prior is reinforced across modalities and contexts, ensuring that it remains available even when memory, language, and attention are compromised. Myth persists where abstract doctrine would fail.

Myth also mediates between individual experience and collective order. The reassembled world-model is not purely personal; it must interface with social reality. By embedding transformation within shared narratives, myth ensures that the initiate's new configuration can be recognized, interpreted, and valued by others. This recognition deepens the new attractor by coupling it to social reinforcement, further stabilizing reassembly.

Crucially, myth guards against **maladaptive stabilization**. In the absence of convergence bias, the system may settle into idiosyncratic or delusional attractors that reduce uncertainty but lack social viability. Myth restricts this outcome by delimiting what counts as an acceptable interpretation of collapse. Experiences that fall too far outside the mythic frame may be rejected, reinterpreted, or corrected by the community, preventing the crystallization of pathological certainty.

This regulatory role helps explain why myth often emphasizes humility, service, or obligation following initiation. These themes counteract the risk of grandiose stabilization by anchoring the new world-model to relational and ethical constraints. In computational terms, they prevent the excessive deepening of a single attractor by maintaining permeability to social feedback.

Taken together, deities, entoptic forms, and myth constitute a **layered control system** that spans the entire arc of dismemberment and reassembly. Deities regulate agency when self-control fails;

entoptic structures provide perceptual anchors when semantics collapse; myth guides convergence when meaning begins to return. None of these elements is optional. Each addresses a specific vulnerability in the transition process.

With this account in place, the paper can now move from qualitative synthesis to formal grounding. The next section presents a mathematical sketch that integrates precision collapse, entropy modulation, policy constraint, and attractor dynamics into a unified computational framework.

9. Mathematical Sketch of Dismemberment and Reassembly

This section provides a **formal sketch**, not a full derivation, of the mechanisms proposed throughout the paper. The aim is to demonstrate internal coherence and computational plausibility rather than mathematical completeness. Each element introduced below corresponds directly to phenomenological, neurobiological, and cultural features already discussed.

9.1 Variational Free Energy and Hierarchical Model Collapse

We begin with the standard formulation of perception and belief updating in predictive processing as **variational free energy minimization**. Let $o_{1:T}$ denote observations over time and $s_{1:T}$ denote latent (hidden) states. An agent maintains an approximate posterior distribution $q(s_{1:T})$ over latent states and a generative model $p_\theta(o_{1:T}, s_{1:T})$ parameterized by θ. Variational free energy is defined as:

$$F[q] = \mathbb{E}_{q(s)}[\ln\ q(s) - \ln\ p_\theta(o, s)]$$

Minimizing $F$with respect to $q$yields approximate Bayesian inference, while minimizing F with respect to θ corresponds to learning. Under ordinary conditions, successful inference results in a posterior that is concentrated (low entropy) around a coherent set of latent causes, corresponding phenomenologically to a stable world-model.

Hierarchical predictive processing extends this formulation by organizing latent states into levels $s^{(l)}$, with higher levels encoding increasingly abstract and temporally extended causes. The generative model factorizes accordingly:

$$p(o, s^{(1)}, \ldots, s^{(L)}) = p(o \mid s^{(1)}) \prod_{l=1}^{L-1} p(\, s^{(l)} \mid s^{(l+1)}) p(s^{(L)})$$

Each conditional distribution is associated with a precision parameter (inverse variance) that determines the influence of prediction errors at that level. Under a Laplace approximation, free energy can be expressed as a sum of precision-weighted squared prediction errors:

$$F \approx \sum_l \frac{1}{2} \varepsilon_l^{\top} \Pi_l \varepsilon_l + \text{const.}$$

where ε_l denotes prediction error at level l and Π_l denotes the corresponding precision matrix.

In stable regimes, high-level precision Π_L is sufficiently large to constrain lower-level inference. This ensures that global assumptions about self, world, and meaning dominate interpretation, yielding a deep attractor basin in belief space. Incremental updating reduces free energy efficiently, and the posterior remains concentrated.

Hierarchical collapse occurs when precision at high levels is reduced below a critical threshold:

$$\Pi_L \to \alpha\Pi_L, \alpha \ll 1$$

As αdecreases, high-level priors lose their ability to suppress prediction errors propagating from below. Lower-level signals exert increasing influence, and the curvature of the free energy landscape around the prior mode decreases. Inference becomes underconstrained: multiple incompatible explanations produce similar free energy values, and the posterior over high-level states broadens dramatically.

This broadening corresponds directly to the phenomenology of dismemberment. As the posterior entropy increases, the system loses confidence in its world-model. Because high-level latent states encode identity, temporal continuity, and global meaning, their destabilization produces a **global collapse** rather than a local disturbance. Prediction error can no longer be resolved by belief updating within the existing model class, leading to sustained high free energy; formally capturing the state described earlier as aporia.

Importantly, free energy minimization does not cease in this regime. The system continues to infer, but without a dominant attractor. From a dynamical perspective, this corresponds to the flattening of the belief landscape: gradients become shallow, convergence slows, and trajectories wander. This wandering is the formal correlate of entropic exploration described in Section 6.

Thus, variational free energy provides a unifying mathematical lens through which the dismemberment process can be understood. Precision collapse transforms the inferential landscape from one dominated by a deep attractor to one characterized by broad, shallow basins and high uncertainty. In the next subsection, we extend this sketch to show how entropy and stochasticity facilitate attractor escape and how reassembly corresponds to the emergence of new minima under altered precision regimes.

9.2 Precision Scaling, Posterior Entropy, and Attractor Escape

To formalize the role of entropy and attractor escape in dismemberment, we now examine how **precision scaling** reshapes the posterior distribution and alters transition probabilities between belief states. The key claim is that shamanic dismemberment corresponds to a controlled increase in posterior entropy that enables escape from entrenched minima in the free energy landscape.

Let $q(s^{(L)})$ denote the posterior over the highest-level latent states; those encoding the world-model, selfhood, and global meaning. Under a Gaussian (Laplace) approximation, this posterior can be characterized by a mean μ_L and covariance Σ_L, where:

$$\Sigma_L \approx (\nabla^2 F(\mu_L))^{-1}$$

Here, the Hessian of free energy at the mode determines posterior curvature. High precision at level L corresponds to large curvature and small covariance; i.e., a narrow, confident posterior. The **entropy** of this posterior is given (up to constants) by:

$$H[q(s^{(L)})] \propto \frac{1}{2} \ln \mid \Sigma_L \mid$$

As precision Π_L is scaled downward during dismemberment, curvature decreases and Σ_L expands. Posterior entropy increases, reflecting growing uncertainty over the identity of the world and self. Importantly, this entropy increase is not noise injected exogenously, but a direct consequence of reduced confidence in high-level priors.

This change has immediate dynamical consequences. In belief space, attractors correspond to local minima of free energy. The probability of escaping such a minimum under stochastic dynamics depends on both barrier height and noise level. Precision collapse affects both simultaneously: it lowers effective barriers by flattening the landscape and increases stochastic exploration by broadening the posterior.

Formally, the probability P_{escape} of transitioning from one attractor basin to another can be approximated by expressions analogous to Kramers' escape rate:

$$P_{\text{escape}} \sim \exp\left(-\frac{\Delta F}{T_{\text{eff}}}\right)$$

where ΔF is the free energy barrier separating basins, and T_{eff} is an effective temperature proportional to posterior variance. Precision collapse both reduces ΔF and increases T_{eff}, dramatically increasing the likelihood of attractor escape.

This formalism captures the dual role of entropy described earlier. At low levels, entropy is insufficient to overcome deep attractors, and the system remains trapped in its prior configuration. At extremely high levels, the landscape becomes so flat that no basin can stabilize. Dismemberment occupies an intermediate regime in which entropy is high enough to permit escape, but not so high as to preclude re-convergence.

From the inside, this regime corresponds to metastability: the system moves between partial interpretations without commitment. From the outside, it appears as radical suggestibility and

vulnerability to bias. Mathematically, this is the region where the posterior is broad but not uniform; where gradients exist but are weak.

Reassembly begins when precision is **selectively restored**. Rather than returning uniformly to its previous values, precision is reintroduced asymmetrically across hypotheses. Certain interpretations (supported by ritual constraint, mythic priors, or social reinforcement) receive incremental increases in precision, deepening new basins in the free energy landscape. As this occurs, posterior entropy decreases locally, and inference begins to converge.

This mechanism explains why reassembly is gradual and path-dependent. Early biases have outsized effects because they operate while the landscape is still flat. Once a basin begins to deepen, it attracts further inference and action, reinforcing itself through circular causality. The system offers its own confirmation.

In summary, Section 9.2 formalizes entropy as the quantitative correlate of liminality. Precision collapse increases posterior entropy, flattens attractors, and enables escape from entrenched world-models. Reassembly corresponds not to entropy elimination per se, but to **entropy shaping**; the guided reduction of uncertainty around new priors. The next section extends this sketch to policy selection, showing how ritual constraint can be modeled as a restriction on action policies during periods of unreliable expected free energy estimation.

9.3 Policy Collapse, Expected Free Energy, and External Constraint

Having formalized belief collapse and attractor escape, we now extend the sketch to **policy selection**, the dimension at which ritual exerts its most distinctive influence. The central claim of this subsection is that shamanic dismemberment involves a failure to reliably minimize **expected free energy** over policies, and that ritual can be modeled as an external restriction on the policy space that restores tractability to inference.

In active inference, policies $\pi$are evaluated according to their expected free energy $G(\pi)$, defined (schematically) as:

$$G(\pi) = \mathbb{E}_{q(o,s|\pi)}[\ln\ q(s \mid \pi) - \ln\ p(o,s)]$$

This quantity can be decomposed into epistemic and pragmatic components, capturing expected uncertainty reduction and alignment with prior preferences. Under normal conditions, the agent selects policies by minimizing $G(\pi)$, yielding coherent, goal-directed behavior.

Crucially, the computation of $G(\pi)$ depends on **stable high-level priors**. Preferences, goals, and values are encoded at high levels of the hierarchy; when these lose precision, the agent can no longer reliably estimate which outcomes are desirable or informative. Formally, expected free energy becomes ill-conditioned: differences between policies shrink relative to uncertainty, and the policy posterior flattens.

Let $q(\pi)$ denote the posterior over policies. Under collapse:

$$q(\pi) \propto \exp(-G(\pi)) \quad \longrightarrow \quad \text{approximately uniform}$$

As $q(\pi)$ approaches uniformity, the system loses normative guidance. No policy stands out as preferable; action selection becomes unstable or arbitrary. This corresponds phenomenologically to paralysis, compulsive repetition, or surrender to external control. The agent does not "choose badly"; it cannot meaningfully choose at all.

At this point, further endogenous inference over policies is counterproductive. Attempting to deliberate in the absence of evaluative structure only increases entropy. This is where ritual intervenes in a mathematically precise way: **it reduces the dimensionality of the policy space**.

Let Π denote the full set of possible policies and $\Pi_R \subset \Pi$ the subset permitted by ritual. Ritual constraints (prescribed actions, postures, schedules, attentional foci) effectively impose a hard prior:

$$q(\pi) = 0 \text{for all } \pi \notin \Pi_R$$

Within Π_R, expected free energy may still be difficult to estimate, but the reduced space ensures that exploration remains bounded. The system is no longer required to evaluate the global policy landscape; it need only operate within a narrow corridor of allowable behavior. This dramatically reduces the risk of catastrophic action while preserving the possibility of learning.

Importantly, ritual does not need to optimize behavior. It only needs to **prevent maladaptive exploration** long enough for belief reassembly to begin. In computational terms, ritual substitutes a crude but robust constraint for a failed optimal controller. This substitution is adaptive precisely because it is simple.

As reassembly proceeds and precision is selectively restored to high-level priors, the estimation of $G(\pi)$ gradually becomes meaningful again. At this point, ritual constraints can be relaxed. Endogenous policy evaluation resumes, now operating within a reshaped inferential landscape. The agent regains agency, but it is no longer naïvely centralized; it remains coupled to external structures and practices that continue to stabilize inference.

This formalization clarifies why ritual is effective even when its symbolic content is opaque to the initiate. Ritual does not work by conveying propositional knowledge, but by **engineering the topology of the policy space**. It alters what actions are possible, not what actions mean. Meaning follows later, as inference stabilizes.

Section 9.3 thus completes the mathematical account of collapse and containment. Belief collapse increases posterior entropy and flattens attractors; policy collapse renders endogenous control unreliable; ritual restores viability by imposing external constraints on action. The final

subsection integrates these elements by modeling reassembly as the emergence of new attractors under constrained exploration.

9.4 Reassembly as New Attractor Formation Under Constraint

The final step in the sketch concerns **reassembly**: how a new, coherent world-model emerges from the entropic, constrained dynamics described in Sections 9.1–9.3. The central claim is that reassembly corresponds to **the formation and deepening of new attractors** in belief–policy space under conditions of restricted exploration. Constraint is not opposed to learning here; it is the condition that makes learning possible.

Following precision collapse, the system occupies a metastable regime with elevated posterior entropy and flattened free energy gradients. Ritual constraints reduce the dimensionality of action and attention, effectively bounding exploration while belief updating continues. Within this bounded regime, repeated inference under similar constraints produces **statistical regularities** in observations and outcomes. These regularities, in turn, drive learning.

Formally, learning corresponds to updates of the generative model parameters θthat minimize expected free energy over time:

$$\dot{\theta} \propto -\nabla_{\theta}\, \mathbb{E}_{q(o,s,\pi)}[F]$$

Because policies are restricted to Π_R, the distribution of experienced observations $o$is also restricted. This restriction induces **biased sampling** of the environment and the self, favoring hypotheses consistent with ritual structure, symbolic framing, and social reinforcement. The effect is not to impose a single belief, but to **increase the evidence density** for certain classes of models over others.

As learning proceeds, precision is selectively reinstated. Let $\Pi_L(t)$ denote time-varying precision at the highest level. Reassembly corresponds to a trajectory in which:

$$\Pi_L(t)\text{:low} \;\longrightarrow\; \text{moderate}$$

but not necessarily back to its original value. As Π_L increases, curvature returns locally to the free energy landscape. New minima appear around hypotheses that have accumulated sufficient evidence. These minima constitute **new attractors**; stable regimes of interpretation and action that now organize inference.

Crucially, these attractors are **path-dependent**. Because the landscape was flat during early reassembly, small asymmetries (introduced by mythic priors, social recognition, or symbolic anchors) had outsized influence. Once curvature begins to increase, these early biases are amplified through circular causality: beliefs guide action; action shapes observations; observations reinforce beliefs. This positive feedback deepens the basin.

Mathematically, this corresponds to a reduction in posterior entropy localized around the new mode:

$$H[q(s^{(L)})] \downarrow \text{locally}$$

while global entropy may remain higher than in the pre-initiation state. Phenomenologically, this matches reports that the reassembled world feels coherent yet less rigid; meaningful, but no longer absolute.

An important consequence of this account is that **successful reassembly does not restore the original attractor**. The old basin was destroyed by collapse; the new basin forms under different constraints and with different learned parameters. As a result, the post-initiation world-model typically exhibits altered values, attentional priorities, and agency relations. This is reflected in ethnographic reports that initiates acquire new capacities but also new obligations, sensitivities, and vulnerabilities.

The continued presence of ritual practices after initiation can now be understood as **maintenance of basin geometry**. Periodic ritual reintroduces mild constraint and entropy modulation, preventing excessive deepening or drift. In control-theoretic terms, these practices function as stabilizing feedback, keeping the system near (but not locked into) a functional attractor.

Failure modes at this stage follow directly from the model. If constraint is lifted too early, learning may be insufficient to stabilize a basin, leading to relapse into metastability. If constraint is too rigid or prolonged, learning may overfit to a narrow set of interpretations, producing brittle certainty. Successful traditions navigate between these extremes by **graduated release of control**, allowing endogenous policy evaluation to resume as reliability returns.

In summary, reassembly is not a reversal of collapse but its completion. Precision is not simply restored; it is **reallocated**. Entropy is not eliminated; it is **shaped**. Constraint does not suppress transformation; it **enables convergence**. The resulting world-model is a new attractor; one formed in the shadow of collapse and therefore marked by an enduring awareness of contingency.

10. Implications and Predictions

The framework developed in this paper yields a set of concrete implications that extend beyond interpretive synthesis. By treating shamanic dismemberment as a regulated transition in hierarchical inference (rather than as metaphor, pathology, or cultural anomaly) it becomes possible to generate **testable predictions**, reinterpret existing data, and reframe long-standing debates across anthropology, neuroscience, and clinical practice. This section outlines those implications at three levels: cultural-anthropological, neurocognitive, and clinical-ethical.

10.1 Anthropological Implications and Predictions

Reframing shamanic dismemberment as a regulated collapse and reassembly of the world-model carries significant implications for anthropology, particularly for how initiation rituals, mythic structures, and cross-cultural convergence are interpreted. Rather than treating these phenomena as symbolic expressions of social order or as culturally idiosyncratic belief systems, the present framework suggests that they function as **adaptive responses to a universal vulnerability in human cognition**.

One immediate implication is that the cross-cultural recurrence of dismemberment motifs should correlate with **structural features of ritual regulation**, not merely with shared symbolism. Traditions that reliably produce functional shamans, prophets, or healers should exhibit tightly constrained initiation sequences, strong role differentiation between initiates and guides, and explicit temporal staging of collapse and reintegration. Conversely, cultures in which initiation is poorly regulated or weakly institutionalized should show higher rates of failed initiation, prolonged illness, or social marginalization following visionary crises. Ethnographic variation in outcome is therefore predicted to track variation in ritual control mechanisms rather than variation in belief content.

The framework also predicts that mythic figures associated with initiation will cluster around **control-relevant functions** rather than moral or cosmological abstractions. Deities governing thresholds, communication, death, judgment, or transformation should appear disproportionately in dismemberment contexts, regardless of broader pantheon structure. Anthropological surveys should thus find functional convergence even where mythological genealogies differ. This prediction offers a principled way to distinguish structural universals from surface-level cultural variation.

A further implication concerns the social recognition of initiatory collapse. Cultures that possess explicit categories for visionary illness, spirit sickness, or calling are predicted to exhibit **lower rates of chronic psychopathology** among individuals who undergo collapse-like experiences. Recognition functions as a stabilizing prior, biasing reassembly toward socially viable roles. In contrast, societies that lack such categories (or that stigmatize collapse outright) are predicted to channel similar experiences into marginalization or pathology. This suggests that the prevalence of certain psychiatric diagnoses may reflect cultural failures of containment rather than intrinsic differences in vulnerability.

The framework also reframes the role of secrecy and esotericism in initiation. Restricted knowledge is not merely a mechanism of power or exclusion; it serves to **protect the integrity of control interfaces**. Exposing destabilizing practices or symbols outside of regulated contexts risks inducing partial collapse without adequate scaffolding. Anthropological accounts of taboos surrounding ritual knowledge can thus be reinterpreted as safety constraints rather than as arbitrary mystification.

Finally, this account predicts that as societies modernize and ritual technologies erode, **collapse dynamics will not disappear but migrate**. Initiatory crises may reappear in disguised forms: spontaneous psychotic episodes, intense existential crises, or unstructured psychedelic experiences. In the absence of culturally sanctioned reassembly pathways, these experiences are more likely to result in dysfunction. This prediction aligns with historical observations that the decline of initiation systems often precedes increases in social and psychological instability, particularly among individuals at developmental thresholds.

Taken together, these implications suggest that shamanic dismemberment is not a relic of "primitive" thought, but an early cultural solution to a problem that remains latent in modern cognition. Anthropology, on this view, becomes not merely the study of meaning systems, but the comparative study of how societies manage the most dangerous transitions available to the human mind.

10.2 Neurocognitive Implications and Testable Predictions

At the neurocognitive level, the framework developed in this paper generates a series of **testable predictions** concerning brain dynamics, neuromodulatory control, and large-scale network organization during collapse, containment, and reassembly. By treating shamanic dismemberment as a regulated transition in hierarchical inference, these predictions link phenomenology and culture to measurable neural processes.

First, the model predicts that dismemberment-like states (whether occurring in ritual, spontaneous crisis, or experimentally induced contexts) should be characterized by **selective reductions in high-level precision**, rather than global neural suppression. Neuroimaging should reveal decreased coherence and effective connectivity within networks associated with high-level priors, particularly the default mode network, alongside increased signal diversity and entropy in sensory and salience-related regions. Importantly, these changes should precede rather than follow subjective reports of ego dissolution or world-collapse, indicating that phenomenology tracks computational state rather than vice versa.

Second, the framework predicts a **specific neuromodulatory signature** associated with successful versus failed transitions. Successful dismemberment trajectories should exhibit transient but coordinated increases in noradrenergic and cholinergic signaling (supporting uncertainty detection and bottom-up sensitivity) followed by gradual normalization as reassembly begins. Dopaminergic signaling, by contrast, should show early instability followed by selective re-stabilization around emerging value structures. Chronic pathology is predicted to correspond either to sustained noradrenergic hyperarousal without normalization, or to premature dopaminergic over-precision around rigid interpretations.

Third, large-scale network dynamics should show **temporally ordered disintegration and reintegration**. During collapse, functional segregation between the default mode, salience, and control networks should increase, reflecting loss of hierarchical coordination. During successful reassembly, reintegration should occur asymmetrically: new patterns of coupling should emerge rather than a simple return to baseline. Longitudinal neuroimaging studies are predicted to reveal that post-transition individuals occupy altered but stable regions of network configuration space, consistent with new attractor formation.

Fourth, the model predicts that **external constraint modifies neural dynamics in measurable ways**. In ritualized or therapeutically scaffolded contexts, entropy increases should be bounded and temporally structured. Neural markers of metastability (such as increased dwell time near critical points) should correlate with the presence of rhythmic stimulation, social guidance, or constrained action. In unstructured contexts, entropy is predicted to rise more chaotically, with greater variance and less predictable recovery trajectories.

Fifth, entoptic phenomena and geometric hallucinations are predicted to correlate with **reduced semantic precision but preserved early sensory organization**. Neurophysiologically, this should manifest as increased visibility of low-level feature maps and oscillatory harmonics, alongside decreased top-down modulation from associative cortices. These phenomena should reliably precede the re-emergence of narrative meaning and may serve as early markers of reassembly onset.

Finally, the framework predicts that **individual differences in resilience** correspond to differences in baseline precision regulation and network flexibility. Individuals with more adaptable precision hierarchies (capable of tolerating temporary uncertainty without premature stabilization) should be more likely to navigate collapse successfully. These differences may be measurable via resting-state entropy, neuromodulatory responsiveness, or prior exposure to controlled liminal states (e.g., meditation, ritual participation).

Collectively, these predictions suggest a research program that bridges anthropology, neuroscience, and computational psychiatry. Rather than asking whether initiatory experiences are “real” or “imagined,” the relevant question becomes whether they are **computationally regulated or unregulated**. The answer, according to this framework, determines whether collapse becomes transformation or pathology.

10.3 Clinical and Ethical Implications: Transformation, Risk, and Restraint

The framework developed in this paper has direct implications for clinical practice and ethical deliberation, particularly in contexts where altered states, psychological crisis, or transformative interventions are encountered. By conceptualizing shamanic dismemberment as a **high-risk transition in hierarchical inference**, the model reframes both the potential and the danger of inducing, interpreting, or managing such states.

Clinically, the most immediate implication is that experiences often labeled as acute breakdowns (psychotic episodes, dissociative crises, or existential collapses) may in some cases reflect **failed or unmanaged transition dynamics** rather than static disorders. This does not imply that such

states should be romanticized or reframed indiscriminately as spiritual opportunities. On the contrary, the model emphasizes that collapse without containment is inherently dangerous. However, it suggests that therapeutic responses focused solely on suppression or normalization may inadvertently foreclose adaptive reassembly.

From this perspective, effective clinical intervention during crisis may depend less on correcting belief content and more on **restoring constraint**. Stabilization strategies (structured environments, predictable routines, social support, and limited choice) can be understood as modern analogues of ritual scaffolding. These interventions do not resolve collapse directly, but they prevent catastrophic drift while endogenous control gradually returns. Importantly, such constraint should be temporary and adaptive rather than punitive or indefinitely imposed.

The framework also bears on emerging therapeutic practices involving psychedelics or other consciousness-altering interventions. These methods deliberately reduce high-level precision and increase entropy in order to promote learning and flexibility. The present account predicts that **outcomes will depend critically on the quality of external containment**. Therapeutic settings that tightly structure preparation, dosing, guidance, and integration are predicted to support adaptive reassembly, while unstructured or recreational use increases the risk of maladaptive stabilization or prolonged instability. The ethical burden, in such contexts, lies not merely in informed consent but in responsibility for the entire transition arc.

A crucial ethical implication concerns **inducement versus recognition**. Traditional initiatory systems typically did not seek collapse indiscriminately; they recognized it when it emerged and responded with containment. Modern attempts to induce transformative states (whether through pharmacology, deprivation, or intense psychological techniques) risk violating this principle. Induction without the capacity for sustained containment and integration is ethically indefensible within the present framework, as it exposes individuals to irreversible harm.

The model also cautions against the instrumentalization of collapse for performance, insight, or productivity. Because dismemberment involves the temporary loss of agency, identity, and evaluative control, it cannot be ethically justified as a means to an end imposed by others. Initiatory traditions that survived historically did so by embedding collapse within systems of care, obligation, and reintegration. Stripped of these safeguards, collapse becomes exploitation rather than transformation.

Finally, the framework highlights the ethical necessity of **restraint**. Not all individuals are suited to undergo deep inferential collapse, and not all contexts can support safe reassembly. Variations in developmental history, trauma exposure, neurobiological vulnerability, and social support profoundly affect risk. Ethical practice therefore requires discriminating judgment, humility, and a willingness to *not* pursue transformation when conditions are inadequate.

In sum, this account reframes shamanic dismemberment as a phenomenon that demands respect rather than fascination. It is neither a pathology to be eradicated nor a tool to be wielded lightly. It is a powerful transition in the dynamics of human cognition; one that cultures once approached with caution, ritual, and care. Any contemporary engagement with similar states must meet or exceed those standards, or risk repeating collapse without return.

11. Limitations and Open Questions

While the framework advanced in this paper offers a coherent account of shamanic dismemberment as a regulated transition in hierarchical inference, it is necessarily provisional. The phenomena under consideration span phenomenology, neurobiology, anthropology, and mathematics, and any synthesis at this scale must contend with unresolved limitations and open questions. Rather than weakening the argument, acknowledging these constraints clarifies the scope of the claims and identifies directions for future work.

A first limitation concerns **empirical verification**. Much of the phenomenological and ethnographic evidence for dismemberment relies on retrospective reports, mythic narratives, and culturally mediated descriptions. While the predictive processing framework provides a principled way to reinterpret these accounts, direct measurement of precision collapse, attractor flattening, or policy failure during naturalistic initiation remains difficult. Experimental analogues (psychedelic studies, acute psychosis research, or controlled deprivation paradigms) offer partial access but may not fully capture the prolonged and socially embedded nature of traditional initiations. Bridging this gap will require longitudinal, multimodal research designs that integrate neuroimaging, behavioral measures, and first-person reports.

A second limitation involves **model abstraction**. The mathematical sketch presented in Section 9 is intentionally schematic. It demonstrates plausibility rather than completeness and abstracts away from many complexities of real neural systems. For example, the mapping between neuromodulators and precision parameters, while well-motivated, remains an active area of research. Similarly, attractor dynamics in high-dimensional, nonstationary systems may not conform neatly to the simplified landscapes invoked here. Future work will need to refine these mappings and test their robustness across models and empirical contexts.

Third, the framework raises questions about **individual variability** that it does not fully resolve. Not all individuals exposed to similar stressors or rituals undergo collapse, and not all collapses lead to similar phenomenology or outcomes. Developmental history, attachment style, genetic predisposition, and prior exposure to uncertainty likely modulate susceptibility and resilience. Understanding how these factors interact with precision regulation and network dynamics remains an open problem with significant implications for both anthropology and clinical practice.

A further open question concerns the **boundary between adaptive and maladaptive reassembly**. While the paper distinguishes ritualized initiation from pathology in structural terms, the line between functional and dysfunctional outcomes is not always clear-cut. Some post-initiation roles may be adaptive within a given cultural context but maladaptive in others. This raises the broader issue of whether "successful" reassembly should be defined solely in terms of internal coherence, social integration, or long-term wellbeing. The framework provides tools for analyzing these distinctions, but not definitive criteria for resolving them.

The treatment of myth and deities as control interfaces also invites further scrutiny. While the present account refrains from metaphysical claims, it leaves open questions about **the subjective reality of such encounters** and their irreducibility for those who experience them. Whether

these experiences should be treated purely as cognitive phenomena or as pointing beyond cognition remains a philosophical question outside the paper's scope. Nonetheless, future interdisciplinary dialogue may benefit from engaging this tension directly rather than dismissing it.

Finally, there is the question of **modern applicability**. Even if traditional societies developed effective means of managing collapse, it is not obvious that these methods can or should be replicated in contemporary contexts. Modern social structures, ethical norms, and legal constraints differ substantially from those in which shamanic initiation evolved. Adapting these insights responsibly will require caution, creativity, and rigorous evaluation.

In closing, this paper does not claim to have solved the problem of transformation, nor to have reduced ancient practices to modern science. Instead, it offers a framework for understanding why such practices arose, how they functioned, and why their disappearance leaves a gap that has not been adequately addressed. The open questions identified here are not flaws but invitations; signals that the study of deep cognitive transitions has only begun.

12. Conclusion

This paper has argued that shamanic dismemberment is best understood not as metaphor, superstition, or pathology, but as a **regulated transition in the dynamics of human cognition**. Drawing on predictive processing, active inference, and dynamical systems theory, we have proposed that these rites encode phenomenological knowledge of what happens when the high-level generative model that sustains a coherent world and self temporarily collapses; and how such collapse can, under constrained conditions, lead to reassembly rather than ruin.

At the core of this account is a simple but far-reaching claim: the experienced world is an achievement of hierarchical inference, stabilized by precision-weighted priors. When those priors lose precision, the world does not merely change; it dissolves. Terror, fragmentation, loss of agency, aporia, and *sol niger* follow necessarily from this collapse, not as cultural embellishments but as structural consequences. Dismemberment narratives, with their insistence on death, annihilation, and reduction to primitives, reflect an accurate report of what it feels like when the inferential architecture that binds perception, meaning, and identity comes apart.

Equally central is the claim that **collapse alone is not transformative**. Entropy enables escape from entrenched attractors, but without constraint it leads to chronic instability or pathological fixation. Ritual, myth, and deity figures emerge in this framework not as symbolic excess, but as distributed control systems: mechanisms that restrict policy space, regulate attention, bias inference, and guide posterior convergence at precisely the moment when endogenous control fails. Cultures that survived engagement with these states did so by externalizing regulation across social, symbolic, and temporal scaffolds, thereby transforming an otherwise lethal instability into a survivable passage.

The mathematical sketch offered here demonstrates that these claims are not merely interpretive but computationally coherent. Precision collapse increases posterior entropy and flattens attractor landscapes; policy evaluation becomes unreliable; external constraints restore tractability; and reassembly corresponds to the gradual formation of new attractors under biased exploration. The resulting world-model is not a return to prior certainty, but a new configuration marked by contingency, permeability, and altered relations to agency and meaning.

This account reframes long-standing debates across disciplines. For anthropology, it suggests that initiation rites are technologies for managing extreme cognitive transitions rather than symbolic dramatizations of social order. For neuroscience, it offers testable predictions linking neuromodulatory control, network dynamics, entropy, and recovery trajectories. For clinical practice, it cautions against both romanticization and suppression, emphasizing containment, restraint, and ethical responsibility. And for philosophy of mind, it underscores the fragility of worldhood itself, revealing meaning and selfhood as dynamical achievements rather than ontological givens.

Perhaps most importantly, this framework explains why the disappearance of initiation systems in many modern societies has not eliminated collapse, but merely stripped it of guidance. The danger is not that such transitions occur, but that they occur **without maps, constraints, or communal recognition**. In this sense, shamanic dismemberment is not an archaic curiosity. It is a record (hard-won and culturally preserved) of humanity's earliest encounters with the limits of its own cognition.

The task ahead is not to revive these practices uncritically, nor to dismiss them as obsolete, but to understand what they knew: that transformation at the deepest levels of mind is possible, perilous, and never free. Any future engagement with such states (scientific, therapeutic, or philosophical) must reckon with this truth. Collapse is easy. Reassembly is not.